



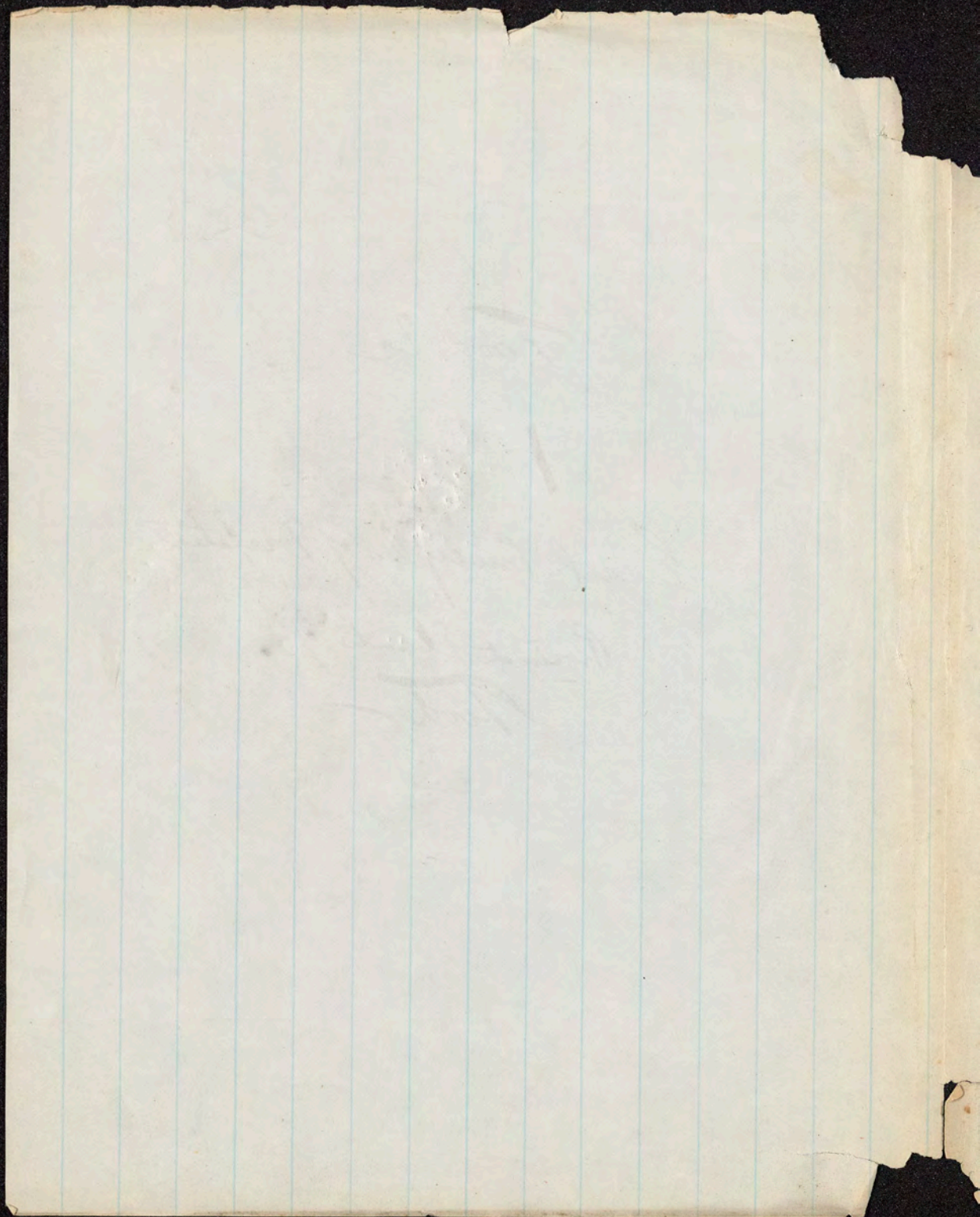
Food &c

1

General Principles of Dietetics

Proximate Elements of

Food —



See next page

about

Cellulose,

Lignin

Pectin

&

Iron

(Before "Saline Principles" etc)

1871 - 1. Etiology

- 2. Vital Statistics } 10 lect.
- 3. Public Hygiene } 10 lect.

1st Lecture

Rhetorical Introductory

- 4. Alimentation } 12 lect.
- 5. Atmosphere & 9 lect.

Divisions of Hygiene -

- 6. Circulation & 2 lect.
- 7. Clothing & Bath
- 8. Excretions & 2 lect.

& its foundations -

- 9. Exercise & 2 lect.
- 10. Mental Hygiene & 2 lect.

Physiology, & Sanitary Experience

- 11. Sexual Hygiene & 2 lect.
- 12. Infantile Hygiene & 2 lect.

Hygiene, with the regulated domain of Anatomy

- 13. Hygiene of Sick Rooms & 2 lect.
- 14. Hygiene of Physicians' life & 2 lect.

As these are fully taught in the ordinary course

preoccupy the ground, I made a few illustrations

of a course upon Hygiene, which is the main applied science.

Then, began Personal Hygiene, with

Alimentation.

[1871; began, after brief introductory, with Etiology; then Vital Statistics; next, Public Hygiene; on these subjects, 10 lectures; Alimentation next, - 9

On the Prevention of Disease

5
DIVISIONS
OF
HYGIENE.

Lecture II.

Hygiene is divided into personal and public, and between the two, and merging into each, is domestic. There might be a question as to whether we should not begin to treat of public hygiene first; but sanitary experience and physiology both point to private hygiene as the starting place. Personal hygiene has the following

PERSONAL
HYGIENE.

FUNCTIONAL
DIVISIONS.

1. Functional Divisions:
- | | |
|-----------------|-------------------------|
| Alimentation, | Muscular Action, |
| Respiration, | Excretion, |
| Heat and Light, | Reproduction, |
| Circulation, | Cerebro-nervous Action. |

GENERAL
SUBJECTS.

2. General Subjects:
- | | |
|-----------|-------------------|
| Etiology, | Vital Statistics. |
|-----------|-------------------|

Personal hygiene is founded directly on physiology. We will begin with the first of the functional divisions, viz:

ALIMENTATION.

Alimentation

- 1st Manner of Eating, 2nd Times of Meals
3rd Quantity of Food 4th Nature and Quality.

MANNER
OF
EATING.

As to the manner of eating, we should thoroughly masticate our food so as to get it mixed with the saliva. ~~and~~ to allow the

* Starch, in the opinion of ^{almost} all physiologists ~~almost~~ ~~except~~ Dr Dalton, is digested partly by the saliva. Infants, therefore, should never be made to live on exclusively or principally farinaceous food before they have their chewing teeth; - the secretion of the salivary glands scarcely begins, also, before the ~~incisors~~ ~~at~~ ~~least~~ are coming through the gums. Generally ^{little} ~~any~~ action of the salivary glands before the end of 3 months. The same is true of the pancreatic secretion.

John Hunter's
 with two Dr P
 on subject, the other Hunter
 Dr Hammond's repetition of same
 the same

of this ^{at} mixture, but for reduction, meat the most

digestive action of the saliva. Vegetable food requires the most chewing. * Not chewing our food well injures the teeth. (A dental convention which met some years ago, declared the main cause of the early decay of teeth in America, to be haste in chewing so that fibres were left in the teeth.) Haste often causes dyspepsia; excess sometimes causes it too; but the former is generally the cause in America. Those who have no teeth, should take only liquid or soft food. Infants too young to have teeth are provided with milk, suited to their condition. So those who are old and without teeth should take such food. During meals, the mind should be free from care. Hence, it is a mistake to attempt to study at dinner. Social enjoyment should be indulged. The brain, muscles and every other part of the body require nervous force. When any part is used much it draws this force from all the other parts. Hence if we study while we are eating, this force will be diverted from the stomach. For this reason we should not eat after violent

INJURY TO TEETH

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DYSPEPSIA.

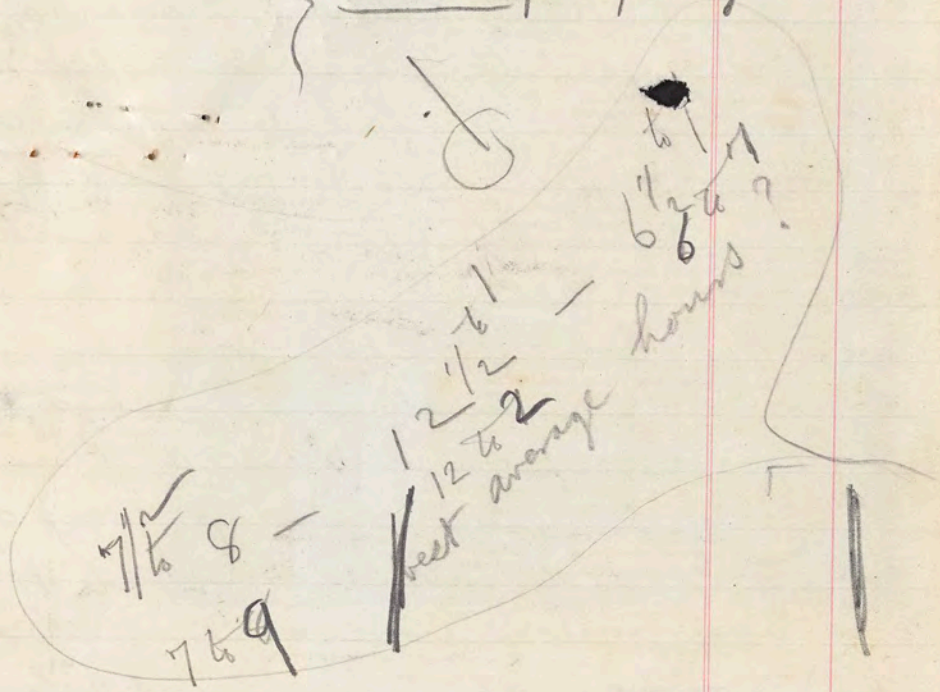
STUDYING AT MEALS.

EATING AFTER EXERCISE

Horses have small stomachs, & are made
to eat a little often
& Hammond's experiments on dogs.

the matter of
[Leave space of 2 pages
for these two "slips" - without copying them.]

Dr. Lethby on the "elaborate menu"
of France or American Hotels -
10 hours for disposal of 5 meals!



HORSES.

REST AFTER MEALS.

TIME AND NUMBER OF MEALS.

PARIS ENGLAND

ENGLISH SUPPER.

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ANCOAST & MAULE,
 THIRD AND PEAR STREETS,
 PLAIN AND GALVANIZED
 WROUGHT AND CAST IRON PIPE
 FITTING AND BRASS WORK,
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 A LOT OF
 CAST IRON DRAIN PIPE
 AND
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 SINGER'S FAMILY SEWING MACHINES
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 standard Machines. Sold \$10 cash, balance in easy
 monthly payments, to suit purchasers. All kinds for
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 easily learned and managed, greater range of work
 than any other sewing machine and all without bast-
 ing. Call and see it. 2t*

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 and Small Stove Sizes, \$7 50; Large Nut,
 \$6 50 per ton of 2240 lbs. A trial will convince of the
 superiority of this coal over all others. ELLIS
 BRANSON, N. W. corner Eighth and Willow sts.
 Office open day and night. 9t*

THE MONITOR AND EAGLE VEIN
 Coals stand unexcelled; also genuine hard
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 street. 4t*

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 half years to run. Apply to J. SELBY, Newark,
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^ Horses have small
to eat a little softer
& Hammonds

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the Third's time (1327-1377) the dinner hour was nine in the morning. A century later, in Edward the Fourth's time (1461-1483), the general hour of breakfast with the nobility, whose meals were considerably earlier than those of tradesmen; yeomen and others, was seven; dinner was served at ten in the morning, and it generally lasted three hours; supper followed at four, and there was a collation at nine, before retiring. This collation consisted of beer and warm spiced wine. During the reigns of Edward VI, Mary and Elizabeth (1547-1603), the hours became later. The nobility, gentry and students dined at eleven in the forenoon, and supped between five and six in the afternoon; but the merchants, especially those of London, did not dine before twelve, and they supped at six; the farmers dined at noon and supped at seven or eight. Towards the close of Elizabeth's reign (1600) the dinner hour was changed from eleven to twelve, and this remained the hour until the time of William III (1688-1702).

The entire change in the habits of the people of England which took place after the restoration of Charles II (1660) contributed to increase the lateness of the hours for everything. It became fashionable among people of rank and fortune to have breakfast in bed and to hold receptions by the bedside. The ancient habit of all the members of the household taking their meals together was abrogated. Domestic followers and retainers came to be looked upon as "servants," and were treated as strangers to the family. They were limited to certain hours for their meals, and these hours were not allowed to interfere with those of their masters. Hence, it became necessary to prepare two sets of meals in every household where there were servants—one for the latter and one for the family. This lies at the root of the modern late hours. As the apartments occupied during the day by the family must be cleaned and put in order so as to be fit to receive them when they rise in the morning, the family refrained from rising until the domestics had time to do this. Another cause of late hours has been the vastly improved lighting up of the interior of houses. Even the old wax and tallow candles were a great improvement on what went before; then came the Argand lamp and other brilliant lamps, chandeliers, and, lastly, gas, which have entirely obviated the inconvenience which our ancestors suffered from darkness. The pressure of business in large cities is another cause. This is so severe now-a-days in large cities that men engaged in professional and mercantile pursuits cannot spare time to do more than take lunch in the middle of the day, so they postpone their dinner until the close of their day's work. But still another, and, perhaps, a more potent cause than all for late dinners, is the suburban railway. In very large cities men of business are no longer, as formerly, compelled to reside near their stores or offices; they can now, by means of railways or horse-cars, be conveyed from suburban residences to their places of business in less time than it took their fathers to walk from their town houses; hence they have more time to devote to business if need be, and they retire when it is over to their families at a later hour.

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Protestants, they may worship in their own homes and not public churches. Happily, the redoubtable Don is a long way from Madrid, with no prospect of getting there as king.

A pilgrimage to Jerusalem is the latest project in this line. The Bishop of Paris is organizing it, and the pilgrims were to leave Marseilles about the middle of this month for Alexandria, and thence, via the Isthmus of Suez, to the Holy City. From there, excursions are to be made to Bethlehem, Jericho, Jordan, the Dead Sea, etc., and on return, Smyrna, Athens, Sicily, and other points will be visited. The duration of the whole will be not far from months and a half.

Considerable importance is attached to the fact that the Pope's delegate in Peru—Vanutelli—has left Lima and settled at Quito, the chief town of Ecuador, where he hopes to find a more congenial soil for his Ultramontanist labors.

THE NORTH CAROLINA ELECTION.

Both parties here claim a victory in North Carolina, and the Democrats are firing guns. The Republicans to-day are rejoicing over a despatch received by the Secretary of the Interior from Collector of Internal Revenue Young, at Raleigh, dated 12 30 last night, saying, "Things look better to-night. The hasty and unreliable despatches of the Democrats are being corrected by the official returns. The Republicans are much more sanguine this morning. Smith's election to Congress in this district is now considered certain, and we think we have carried the State."

Supervisor P. W. Perry telegraphed to-day, at noon, from Raleigh to Secretary Delano: "Everything is brightening. Caldwell and the whole State ticket is elected."

TREASURY DECISIONS.

In the case of small boats, ranging from three to eight tons burthen, cruising as pleasure boats on the waters of Lake Erie, and which are sailing without papers of any kind, the Secretary of the Treasury has decided that these vessels are not yachts in the eyes of the law, as they cannot be enrolled and licensed, nor are they entitled to the privileges of yachts, though used as pleasure boats, and the Collector is instructed to issue to them the proper documents for vessels of their tonnage engaged in the coasting trade.

In the case of a steamboat altered into a barge, and where the owner applied for papers and desired to change her name, the Secretary decided that the vessel was entitled to such papers as are granted to other vessels of her class and character, but Congress alone by special legislation could authorize a change of her name.

WASHINGTON, Aug. 4.

THE PRESIDENT'S RETURN.

Information has been received that the President expects to return here at the close of this week.

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Private telegrams continue to be received from North Carolina. Those from Democratic sources still claim the State, though by a majority reduced from former calculations. The uncertainty which prevails in the public mind prompts frequent inquiry at the several sources of information for the latest intelligence.

from General Dix.

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We should rest

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HORSES.

REST AFTER MEALS.

TIME AND NUMBER OF MEALS.

PARIS

ENGLAND

ENGLISH SUPPER.

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Horses
to eat a little

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In Edward the Third's time (1327-1377) the dinner hour was nine in the morning. A century later, in Edward the Fourth's time (1461-1483), the

nations become civilized the dinner-hour shifts into the region of the evening; and the meal becomes physico-intellectual, instead of animal. In Henry the Seventh's reign the court dined at eleven, A. M. In Cromwell's time at one, P. M. In Addison's day fashionable people dined at two, P. M., and Pope in A. D. 1740, complains of Lady Suffolk dining at four, P. M., and says, "if such doings continue he must absent himself from Marble Hall." Forty years later Fowler says four was the fashionable hour; another quarter of a century and it had advanced to five. Thus was the dinner hour waited on civilization, for as people learn that every action has a definite influence on character, they begin to understand how, even in eating and drinking, they may subordinate appetite to amiability and intelligence.

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N CENTS PER WEEK.

one hundred guns for the victory which they claim in North Carolina.

EXPECTED RETURN OF THE PRESIDENT. President Grant is expected to return to this city on Friday next.

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old proverb say after breakfast per walk a mile should be the

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The English supper consists of cold meat, pie,

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HORSES.

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TIME AND NUMBER OF MEALS.

PARIS

ENGLAND

ENGLISH SUPPER.

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BAD "FASHIONS."

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The system of late dinners, now carried to such an excess in fashionable circles of society in London, has called forth the denunciations of medical men, who have discovered that much of the prevailing sickness is attributable to unreasonable hours, and the over-eating which they stimulate. The dinner hour has been gradually postponed from six o'clock to eight, and even half-past eight; and this has brought about the fashion of taking a hot and solid meat lunch about two o'clock, followed at five by a service of tea, or a "kettle-drum," as it is termed. So that a fashionable Englishman now takes four meals a day—viz, a substantial breakfast about half-past eight, a lunch at two, a tea at five, and a dinner at seven or eight, over which he passes two hours, delecting his palate with such dishes and compounds of soup, fish, flesh, fowl, vegetables and fruits, as the skill and ingenuity of a professional cook can devise, washing the people down with various wines, such as hock, the Sherry, Champagne, Sauterne and Moselle, during the dinner. After it, when the dessert is laid, the potatoes are varied with port, Maderia, and claret. This is his regular daily fare; but to it must be added his irregular acquisitions, such as a glass of Curacao, or Maraschino, or hock and soda water, when he arrives at his club in the morning, to read the papers and smoke his cigar, or to take a hand at morning whist or billiards, also, a biscuit and a glass of ale or wine at twelve. This is pretty well for a day's digestion; and, even if moderation be observed as regards quantity, it is evident that the stomach is tried with too frequent doses and too great a variety under such a system. Thirty years ago, the eminent physician, Sir Henry Holland, pointed out the general excess in the quantity of solid food taken by these fashionables in England; and medical men have asserted that habitual gluttony is more injurious than habitual excess in wine. The custom of domestic Europe was to have three meals a day—breakfast at five, dinner at twelve, and supper at five or six. In Germany, an early dinner and supper are still the rule. One o'clock is about the usual dinner hour, then a few German Courts dine later than three or four. In Italy and France, the dinner hour has not advanced beyond four or five. In this country, the dinner hour of operatives varies from twelve to one, of business men, from one to three, and those who give dinner parties usually fix the hour between five and six. But in England, they have approximated to the hours of the ancient Greeks and Romans. Modern London now rivals the Rome of Augustus, and the result is seen in the great increase of dyspepsia, heart disease and apoplexy.

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 Horses

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HORSES.

exercise. Everyone who ^{or drives} rides horses is aware of this fact. After a hard ride, they have to be ~~rested~~ ^{& also must not be driven hard immediately after eating.} We should sit a while before we eat. The Americans are in fault here again.

REST AFTER MEALS.

We should rest a while after a meal. An old proverb says "After dinner sit a while, after breakfast, read a while, and after supper walk a mile" According to this, supper should be the lightest meal.

TIME AND NUMBER OF MEALS.

As to the time of meals, there is no rule. Two or three centuries ago, dinner in Eng-land was before noon, now it is in the evening.

PARIS

ENGLAND

In Paris, ^{except at some public institutions, as by many people} but two meals per day are eaten, while in England, at least four are eaten ^{by most people}. It is curious for the traveller to find that both modes agree perfectly well with him. When we eat often, we take less at each time, than if we do not eat so often.

ENGLISH SUPPER.

The English supper at bed-time surprises Americans. It is well known that what are called late suppers do not agree with us, hence a supper at bed-time looks dangerous but we find it to agree very well. The English supper consists of cold meat, pie,

For Blackboard

Hygiene of Alimentation

1. Manner of Eating, 2. Frequency, 3. Quantity,
4. Nature and Quality of Food.

1. Eat slowly, after rest, with the mind free from care.

2. Take no violent exercise, or severe study, ^{immediately} soon after dinner.

3. Eat always when hungry; but not much between regular meals. A crumb in time saves nine.

Average quantity for adult: ^{2 1/2 pounds} 40 oz. of solid food, - ^{1 1/2 to 3 pints} $\frac{2}{3}$ vegetable; with 20 to 50 fl. oz. liquid.
Minimum, - 12 oz solid food daily. Maximum, in Arctic climate, 20 lbs fat meat daily.

Classification of Food

1. Nitrogenous, 2. Amylaceous, 3. Cellulosive, 4. Acidulous, 5. Saline.

OTHER MEALS OF THE ENGLISH.

bread, cheese &c. Their breakfast at about 9 o'clock consists ^{a good deal} of cold ^{hard water} meat. Lunch is taken at ^{about} 1 o'clock and dinner at from 4 to 6 o'clock.

Our tea, is overlooked, or if not, the slices of bread which form it, are so thin that they hardly hold together. The reason that in England supper can be eaten at bed-time is, that a long time has elapsed since the last meal. They have dinner late and do not feel hungry at our suppertime. We take dinner early so that we get hungry about 7 o'clock. If we eat a full meal then, we do not feel hungry at bed-time; ^{unless that be late.} A general rule is to eat when we are hungry. A full meal takes four hours ^{or more} for digestion. It is often asked if we should eat between meals?

EATING BETWEEN MEALS.

If we are hungry, we should, if not, not. We should not take much between meals. In sickness, a patient very often cannot wait until meal time. In low fevers, as the typhus, the patient has to be fed every hour. It is a matter of consequence not to delay giving food to sick persons. Feeble patients often suffer from such delay. The importance of giving

End of 1st Lecture, 1873. SICK PERSONS.

or a drop
 A crumb _^ in time saves nine

Case - of a lady subject to occasional convulsions,
 neuralgic attacks, ditto.

End of 1st Lecture, 1867.

End of 17th Lecture, 1872.

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REGULARITY
OF
MEALS.

QUANTITY
OF
FOOD.

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Food makes heat, and
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ESQUIMAUX.

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BULIMIA.

disease called bulimia there is an excessive
appetite. ^{Savary says} A boy ate 64 lbs of food per day for
six days.

MIN. AM'T.
IN
ARCTIC
REGIONS.

In Arctic regions, the minimum
amount of food as reported by Capt. Parry,
is 20 oz. solid food, 10 being of biscuit, 1 of cocoa
and 9 of meat. (The maximum is about 20 lbs)

^{Dr. Jarvis} speaks of a certain woman who

FACETIE.

GUNSHOT WOUNDS.—The Boston Courier is responsible for the subjoined contribution to the literature of this branch of surgery:—

A wounded man in St. Louis informed the doctor that he was shot between Murphy's and the depot. The physician said he did not know precisely what parts of the human body were designated by those titles, but he had no doubt a gunshot wound in such a spot was excessively dangerous, and he recommended that the man be kept quiet while he went home and hunted around among his books to find whether Murphy's was near the heart. He has not yet returned, and the invalid, consequently, is get-

"Parrish's Pharmacy" is a work on this side of the water, and the fact shows us that a really useful work never becomes merely local in its fame. Thanks to the judicious editing of Mr. Wiegand, the posthumous edition of "Parrish" has been saved to the public with all the mature experience of its author, and perhaps none the worse for a dash of new blood.—London Pharm. Journal, Oct. 17, 1874.

LARY—New Edition—Just Issued.

FORMULARY.

inal and other Remedies. The whole adapted by ROBERT E. GRIFFITH, M.D., etc. Third edition, revised, by JOHN M. MAISCH, Prof. of Materia Medica. In one large and handsome octavo volume, \$5 50.

Pharmacopoeias. Much obsolete matter has been

As reported by Dr. Jarvis

Dr. Br. Séq. treats (1873) dyspepsia
 by feeding with small am'ts of nutritious
 substances every 10, 20, 30 minutes! for BOS
 one or two weeks.

Dr. Brown-Séquard considers that the facts observed under this treatment confirm "the view that we are naturally organized, like most, if not all animals, to eat very frequently, and not, as we do, two, three, or four times a day;" and that "functional dyspepsia, when once it has begun (never mind by what cause), is kept up and increased by distention of the walls of the stomach." It might be supposed that there would be trouble from the distention of the stomach on the return to the ordinary system of meals, after several weeks of the treatment described, but in no case has he found this to occur.

time says mine

occasional convulsions,
 attacks, ditto.

me, 1867.

End of 17th Lecture, 1872.

Dr. Br. Ség. treats (1873) dyspepsia
by feeding with small amts of nutritious
Substances

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Case of Bulimia.—Dr. LUBELSKI, of Warsaw, has forwarded to the Paris Académie de Médecine the particulars of a remarkable case of bulimia occurring in a woman twenty-six years of age, usually enjoying good health. She had been married but two months when she was seized suddenly with nervous symptoms, which were at first attributed to probable pregnancy. But at the same time came on an insatiable appetite and devouring hunger, so that the woman would eat from fourteen to sixteen pounds (Russian?) of meat daily. Neither sugar nor albumen were found in the urine. She grew enormously fat, so that she became unable to walk, and weighing about 250 lbs. All known therapeutical agents were tried in vain, and it was found that there was quite an abnormal tolerance of poisonous substances. Neither tania nor any other form of helminthiasis existed, nor, indeed, any pathological condition which offered a clue for treatment, although the occurrence of convulsive paroxysms when she was not supplied with food seemed to indicate some kind of nervous affection. M. Lubelski, wishing to have the opinion of the Academy on the nature of the case and the treatment to be pursued, a committee was appointed to report upon it, consisting of MM. Béclard, Personne, and Vulpian.—*Med. Times and Gaz.*, June 12, 1875.

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time says mine

occasional convulsions,
attacks, ditto.

me, 1867.

Lecture, 1872.

food to the sick is now more properly estimated, than it was formerly. ~~Dr. Sturtevant~~ ^{Dr. Sturtevant} says ^{in his treatise on neuralgia} that ^{the} best anodyne ^{is} food, that a bowl of ^{hot} soup is better than a grain of opium. ^{sometimes} Regularity in the time of taking our meals, is important. All our organs are capable of being habituated. Habit is, with us, a second

REGULARITY
OF
MEALS.

QUANTITY
OF
FOOD.

nature. The next subject is the quantity of food. It varies in different ^{parts of the world} places. In the Arctic regions, the greatest amount is eaten.

Food makes heat, and as it is ⁱⁿ very cold ^{climates} ~~there~~, a large amount of food is necessary.

ESQUIMAUX.

Carbo. hydrogens especially are wanted. It is said, that four Esquimaux will eat a ^{whole} sheep ^{for dinner} and that sometimes 20 lbs of fat ^{meat} are eaten. About 10 lbs is their usual allowance, tallow candles &c. being thrown in.

BULIMIA.

In the disease called bulimia there is an excessive appetite. ^{Parry says} A boy ~~ate~~ ^{ate} 64 lbs of food per day for six days. In Arctic regions, the minimum amount of food as reported by Capt. Parry, is 20 oz. solid food, 10 being of biscuit, 1 of cocoa and 9 of meat. (The maximum is about 20 lbs)

MIN. AM'T.
IN
ARCTIC
REGIONS.

^{Dr. Jarvis} speaks of a certain woman who

⊕ Bread,
 Soup,
 Yolks of eggs
 and meat

↳ "Starvation cases", deceptions: one
 1870, in England, fatal when watched.

Dr Tanner
 1880 40 days
 only water.

⊕ Lethby says, -

Carbon 4005 grains
 Nitrogen 184 " } idle

Carbon 5791 " } at
 Nitrogen 302 " } steady
 work.

Carbon 4500 mth } fair average
 Nitrogen 250 }

Mr. Naughton of Albany tells of Reuben Kelsey, whose sole drink food was water for 53 days; for six weeks he walked out every day. Got up at bed till the day of his death. (Transactions of Albany Institute, 1830).
 Big. Lay's similar but shorter time, 3 weeks? without food, comfortable, see after delirium

little the 16th a book it food com- years would one of wine. h he her St-

CORNARO.

did not recover for a ^{month} ⁱⁿ ^{Corcoran's} ^{book} ^{daily} took 280z. of food and lived over 70 yrs. These are extreme cases. The average minimum is about 40 oz. of solid food ^{2/3} of it vegetable; and 20 ^{sometimes 50} ^{or 30} oz. of liquid. Dr. Dalton states the following to be the average minimum: ^{1 lb} 16 oz. meat, ^{1 1/4 lb} 19 oz. bread, ^{4 oz} 3 1/2 oz. fat, and ^{52 oz} 52 oz. water. Dr. Parke gives the following statement. An average man should eat from 22 to 23 oz. of water-free food when not under exertion; 30 oz when under exertion. The amount of nitrogen should be 250-350 grs; carbon ⁴⁵⁰⁰ 3500-5000 grs; salts, 400 grs; water, 98.00 oz; carbo-hydrogens, 14 1/4 oz. ϕ

AVERAGE

MINIMUM

Dr. DALTON'S STATEMENT

Dr. PARKES.

This is a ^(R. Willis on Sutton's Delapraight, England)
 Ruston, said by a highly respectable
 English author, Dr Robt. Willis, to be
 well-authenticated, of the master of a water-
 logged ship, who survived 28 days
 without any solid food, with no drink
 except rain-water gathered in the palm of
 his hand as it tricked down the mast.
 He was much exposed to the spray of the
 sea, - his thick clothing almost constantly saturated over.

⊕ Bread,
 Soup,
 Yolks of eggs
 and meat

↳ "Starvation cases", deceptions: one
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Dr Tanner
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CORNARO.

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AVERAGE

MINIMUM

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Dr. DALTON'S STATEMENT

Dalton states the following to be the average minimum: ^{1 lb} 16 oz. meat, ^{1 1/4 lb} 19 oz. bread, ^{4/8 lb} 3 1/2 oz. fat, and

Dr. PARKES.

^{1 1/2 pints} 32 oz. water. Dr. Parkes gives the following statement. An average man should eat from

22 to 23 oz. of water-free food when not under exertion; 30 oz when under exertion. The amount of nitrogen should be 250-350 grs;

carbon ⁴⁵⁰⁰ 3500-5000 grs; salts, ⁴⁰⁰ 400 grs; water, 98.00 oz; carbo-hydrogens, 14 1/4 oz. ϕ

Captain Kopken of the brig
 Shelephof, was taken alive from
 the wreck of his vessel Oct. 19th 1877,
 he has been there since its disabling
 July 3^d, (almost) all that time
 without food. He had weighed
 235 lbs; when found, 120 lbs.
 all but he had perished.

⊕ Bread,
 Soup,
 Yolks of eggs
 and meat

trans: one

Dr Tanner
 1880 40 days
 very water.

P Lethaby says. -

Carbon 4005	grams	} id.
Nitrogen 184	"	
Carbon 5791	"	} at steady work.
Nitrogen 302	"	

Carbon 4500 mth } fair average
 Nitrogen 250

CORNARO.

for four years lived on nothing but a little water per day. ~~Cornaro~~, an Italian of the 16th century, who lived ^{many} 100 years and wrote a book on "How to Live Long", ate ~~12~~ 12 oz. of solid food and 14 oz. of light wine per day. He commenced this diet when he was eighty years old. His friends were afraid that he would injure himself, so to please them he ~~one~~ day took 14 oz. of solid food, and 16 oz. of wine. The result was a sickness from which he did not recover for a month. Another Italian ^{mentioned in Cornaro's book} took 28 oz. of food and lived over 70 yrs. These are extreme cases. The average

AVERAGE

MINIMUM

Dr. DALTON'S STATEMENT

Dr. PARKES.

age minimum is about 40 oz. of solid food $\frac{2}{3}$ of it vegetable; and 20 ^{sometimes 50} 30 oz. of liquid. Dr. Dalton states the following to be the average minimum: ^{1 lb} 16 oz. meat, ^{1 1/4 lb} 19 oz. bread, ^{4 1/2 lb} 3 1/2 oz. fat, and ^{5 1/2 lb} 5 1/2 oz. water. Dr. Parkes gives the following statement. An average man should eat from 22 to 23 oz. of water-free food when not under exertion; 30 oz when under exertion. The amount of nitrogen should be 250-350 grs; carbon ⁴⁵⁰⁰ 3500-5000 grs; salts, ⁴⁰⁰ 400 grs; water, 98.00 oz; carbo-hydrogens, 14 1/4 oz. ϕ

(13) French Navy — daily, $2\frac{1}{4}$ grammes (less than $\frac{1}{4}$ lb) meat; ¹² ~~but~~ a week, 3.3 lbs animal food (beef, bacon & cheese), & 16.5 lbs veg. subst., (beans, peas & rice.)

U.S. Navy,
each week,
 $6\frac{1}{2}$ lbs animal food
(beef, pork &
preserved meats)
11 lbs vegetables
(beans, rice, flour,
dried fruit, desic-
cated potatoes, &
mixed vegetables)
with liberal allowance
of sugar, molasses,
vinegar & pickles.

(14) German Army ration, 1871,
 $\frac{3}{4}$ pound fresh or salt meat,
 $3\frac{3}{4}$ oz. rice or grit,
 $7\frac{1}{2}$ oz. peas or meal or
3 pounds pearl barley,
 $\frac{3}{4}$ oz. of salt
 $\frac{3}{4}$ oz. coffee
 $\frac{1}{4}$ litre of brandy or
 $\frac{1}{2}$ litre wine, &
5 cigars!

(3) French Navy - daily, 2 1/4 grammes (less than 1/16 lb) meat; ^{12.} in a week, 3.3 lbs animal food (beef, bacon & cheese), & 16.5 lbs veg. subst.,

(beans, peas &

U.S. Navy

each week,

6 1/2 lbs animal food

(beef, pork &

preserved meats)

11 lbs vegetable

(beans, rice, flour)

dried fruit, des-

cated potatoes, &

mixed vegetables

with liberal allowance

of sugar, molasses

vinegar & pickles

An average man (70 kilogrammes weight)

in repose excretes daily 24 to 30 grammes

of urea: exhales 216 grammes of carbon;

& needs 21 grammes of nitrogen.

For the utilization of all the nitrogen

of food, the animal must have enough

carbon supplied. See.

(2) German army ration, 1871,
3/4 pound fresh or salt meat,
3 3/4 oz. rice or grit,
7 1/2 oz. peas or meal or
3 pounds pearl barley,
3/4 oz. of salt
3/4 oz. coffee
1/8 litre of brandy or
1/2 litre wine, &
5 cigars!

Will Please Call and Receive Their

BONDS.

JAY COOKE & CO.,

114 SOUTH THIRD STREET.

BOUGHT AND SOLD

ON COMMISSION.

DE HAVEN & BRO.,

20 SOUTH THIRD STREET.

DIETARIES.

In many places
houses, dietaries
are allowed

ENGLISH
ARMY

140 oz. It is
that, the English

U.S.
ARMY.

140 oz. per week
bread and is
allowed. In

LABOR
MENTAL
OR
PHYSICAL.

larger being
economy to
exercise, either

SICKNESS

an increase of
the greater demand.
concentrated food.

CONVALESCENCE

In sickness, especially in
acute diseases the appetite is diminished.
In chronic disease as in consumption, this
does not so often happen. Some consumptives
have as good appetites as healthy persons.

CHLOROSIS.

In convalescence the appetite is often un-
usually large. This is always a sure sign
of recovery. The convalescent eats frequently
rather than in large quantities. Sometimes
we meet with a perverted appetite as in
chlorotic females. They will eat slate pencils

fish work

The men
the women

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(3) French Navy — daily, 2 1/4 grammes (less than 1/4 lb) meat; like a week, 3.3 lbs animal food (beef, mutton & cheese), & 16.5 lbs veg. subst.,

(beans, peas &

U.S. Navy

each week,

6 1/2 lbs animal food

(beef, pork & preserved meats)

11 lbs vegetable

(beans, rice, flour)

dried fruit, de-

hydrated potatoes, &

mixed vegetables

with liberal allowance

of sugar, molasses

vinegar & pickle.

The army ration, provided by law for daily issue to each soldier, is larger than that issued in any other army of the world—of the best quality, and more than sufficient for the subsistence of the men.

The daily allowance per man is:

- 12 oz. pork or bacon, or
- 20 oz. salt or fresh beef.
- 22 oz. flour or soft bread, or
- 1 lb. hard bread, or
- 20 oz. corn meal.
- 15 lbs. peas or beans, and
- 10 lbs. rice or hominy to every 100 rations.
- 10 lbs. coffee, or
- 22 oz. tea to every 100 rations.
- 15 lbs. sugar,
- 4 qts. vinegar,
- 22 oz. candles,
- 4 lbs. soap,
- 3 lbs. 12 oz. salt
- 4 oz. pepper,
- 30 lbs. potatoes,
- 1 qt. molasses,

To every 100 rations.

The above ration is due each soldier, and in our large general hospitals, where it cannot be consumed, the whole amount due all the sick and wounded, each month, is passed to the credit of the hospital money, and the portion actually drawn from the issuing commissary charged to the hospital, thus leaving to the credit of the institution a large amount in

German army ration, 1871,

3/4 pound fresh or salt meat,

3 3/4 oz. rice or grit,

7 1/2 oz. peas or meal or

3 pounds pearl barley,

3/4 oz. of salt

3/4 oz. coffee

1/8 litre of brandy or

1/2 litre wine, &

5 cigars!

of ar & me
of food
Carbon

DIETARIES.

In many places, as in the British work houses, dieteries are established. The men are allowed 179 oz. per week, and the women 140 oz. It is stated, probably erroneously, that the English agricultural laborer gets 140 oz. per week. In the British army, 1 lb. bread and 1/4 lb. meat (196 oz. per week) are allowed. In our army the amount is much larger being 266 oz. per week. It is the best economy to feed an army well.

ENGLISH ARMY

U.S. ARMY.

LABOR MENTAL OR PHYSICAL.

Labor or exercise, either mental or physical, demands an increase of food. Physical labor causes the greater demand. Brain-work requires more concentrated food. In sickness, especially in acute diseases the appetite is diminished. In chronic disease as in consumption, this does not so often happen. Some consumptives have almost as good appetites as healthy persons.

SICKNESS

CONVALESCENCE

In convalescence the appetite is often unusually large. This is always a sure sign of recovery. The convalescent eats frequently rather than in very large quantities. Sometimes we meet with a perverted appetite as in chlorotic females. They will eat slate pencils

CHLOROSIS.

Some cancerous patients. Worms may destroy appetite. does best to

When deprived of sleep, - as in watching with the sick,
a little extra food lessens exhaustion. Nurses should
always be considered in this & physicians should
consider themselves, & ask for food at every time.

6th must not be offensive to taste or smell.

and other earthy substances. Perhaps there is some error in the blood which requires this to overcome it.

WHEN TO STOP EATING.

It is a matter of importance to know when to stop eating. We should stop as soon as hunger is appeased. We should not eat until we can eat no more. If we can feel our dinner we may know that we have eaten too much; for, in health, the stomach has no feeling. It only has feeling when it is out of order, or when we eat too much or what does not agree with us.

REQUISITES OF FOOD.

The next subject is the nature and quality of food. There are six!

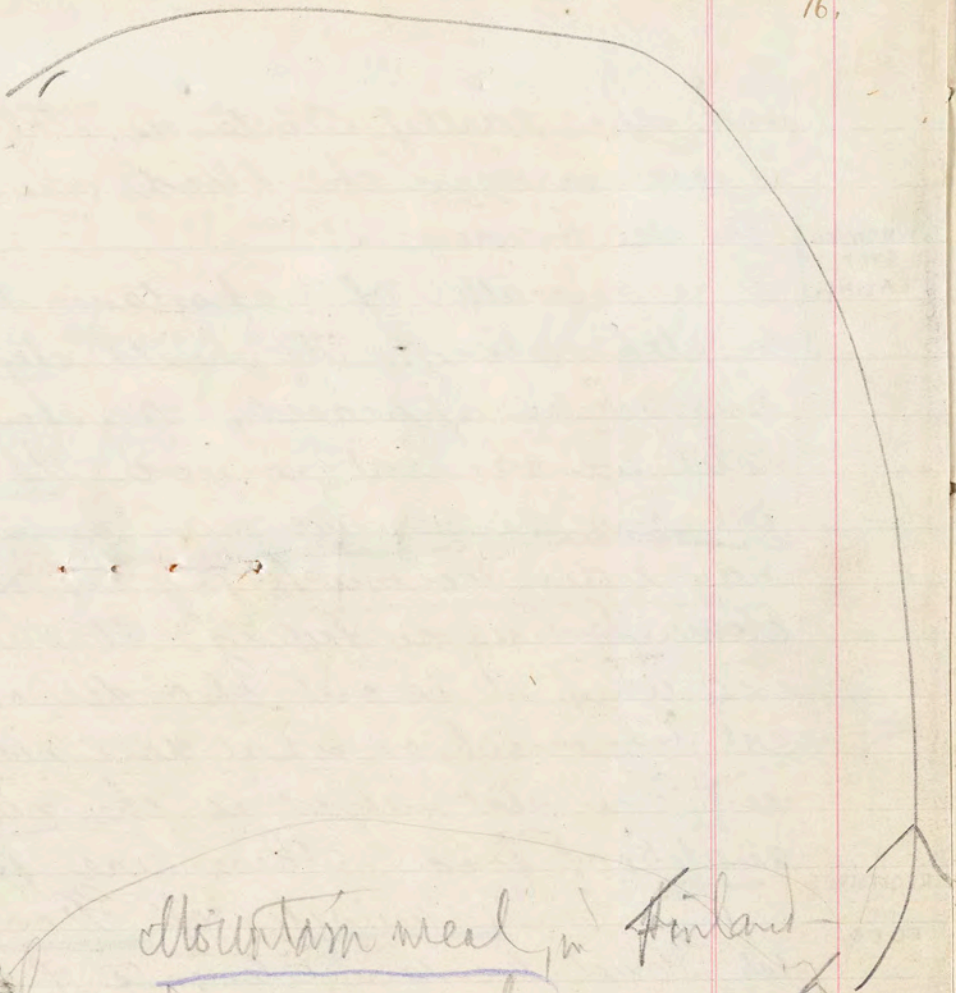
Requisites of Food.

- 1st. Must Contain ^{some} Elements of the Body,
- 2nd. Must be Organic, (except water and salt.)
- 3rd. Must be Mechanically Reducible.
- 4th. Must be Soluble by the Digestive Fluids.
- 5th. Must Contain Nothing Poisonous.

at taste

Although glass contains silicon, an element of the body, yet it is not food because it cannot be reduced to a pulp. ^{neither is lime, nor charcoal} The body has ^{four} ultimate elements, carbon, hydrogen,

ELEMENTS OF BODY.



mountain meal in Finland
hundreds of wagon-loads a year.

Force food.
 X McDonnell's theory of glycosis of
 liver, uniting with nitrogen of food & blood
 to make $C_2H_5O_2N$ tissue; - instead of this, in
 diabetes, the glycose forms sugar, & the tissue fails & so ^{is made}.

also:

Pick & Wislicenus & ~~Henry~~ Weston

Force-food ^{mainly} is carbo-hydrogenous.
 albumen & gelatin are sometimes so also.
 See left page next ~~to~~ Piccard.

Frankland has by chemical experiments (combustion)
 & calculations confirmed this view.

Force food in some animals bears a very large proportion to
 tissue food. - A young robin, it has been shown, eats in 24 hours nearly ~~the~~
~~once~~ once and a half its own weight of food, with very much
 less than that amount of increase of weight. This is mostly nitrog. animal food.
 (Larva & wings likewise for contrast) for tissue & force.

LIEBIG'S CLASSIFICATION

Liebig classifies food according to its use, into Plastic or tissue food and calorific or heat and force making food. This classification needs some modification. The two are often mixed. ~~No food is exclusively one or the other.~~

NITROGENOUS FOOD.

~~We will first consider nitrogenous food. It occurs in both animals and vegetables, as the lean of meat, and wheat. While here, we will discuss the theory of the vegetarians.~~

VEGETARIANISM

~~They think all ^{meat} should be abolished.~~

PROXIMATE PRINCIPLES.

They say that vegetables have all the elements of the body; not only this, but that they have ~~proximate principles~~ ^{proximate} principles to the principles in our bodies. They have vegetable albumen, corresponding to the albumen of the body; gluten corresponding to ^{myosin} ~~fibren~~; legumin, corresponding to casein. Since these proximate principles are identical, vegetarians say there is no need of animal food. ^{But} There is a difference between these proximate principles. Animal and vegetable albumen are not exactly the same. They are isomeric but not identical; just as is the case with oxygen and ozone. They are not exactly the same.

So near

OZONE.

dynamization the difference

From last page -

Piccard says the Chamorro hunters of the Alps, when going on journeys that involve much exposure, take with them only bacon fat and sugar - as most sustaining with least bulk.

~~W. H. H. H.~~

STRUCTURE
OF
ORGANS.

If we examine the structure of the organs used for food we ~~quickly~~ ^{quickly} ~~come~~ ^{lead us} to the true conclusion respecting what food we should eat.

TEETH.

We will first examine the teeth. The carnivora have incisors and canines. They live on flesh.

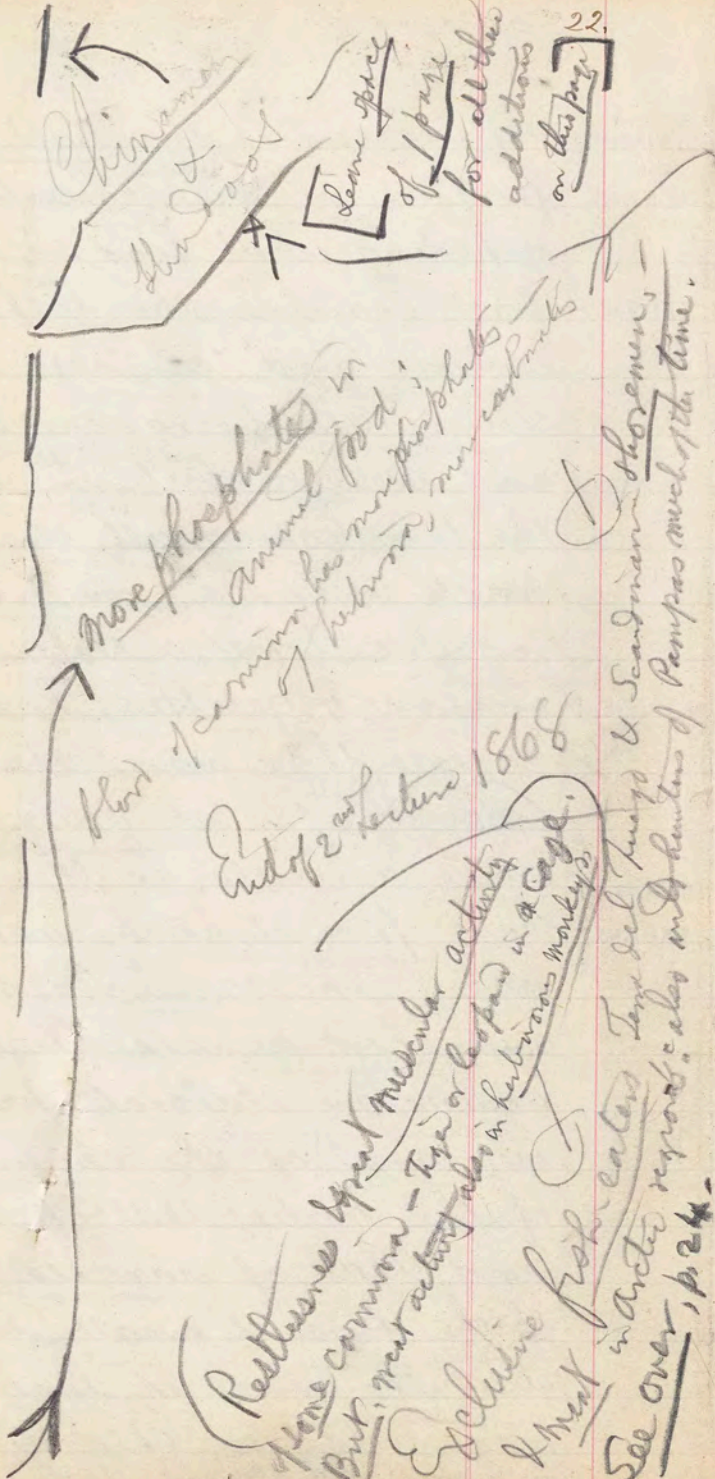
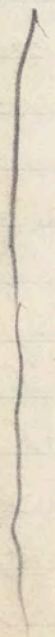
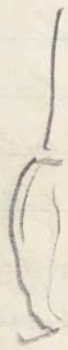
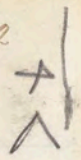
Ruminants, living on vegetables have molars and incisors but ^{almost all of them} no canines. Man is between the two, having all three kinds. This plainly points to him as omnivorous.

AN EXCEPTION.

Unfortunately for this theory, a certain monkeys, ^{except a few species} which live ^{almost entirely} only on vegetables, have even more prominent canines than man.

DIGESTIVE
ORGANS.

The next organ to consider ^{are} the digestive organs. Herbivorous animals, as the sheep, deer and camel, have four stomachs and long alimentary canals. The carnivora have simple stomachs and short canals. Vegetable food is bulky and requires an elaborate process. The alimentary canal of the sheep is ^{about} 28 times the length of the body; that of the lion is three times and that of man six times. The stomach of the horse is small, being an exception, but still the canal is long. The position which man holds in this ^{respect} distinction seems to show what food he is destined to eat.



Little ghee (clarified butter)
 tool of carrying a heavy
 35 miles a day continuous
 fatigue! *Stewart Clark, m.*
of the Army in India.

VEGETABLE EATERS

MEAT EATERS

A person of vigorous health, in a good atmosphere, doing intensive work, and with ^{plenty of} food can do without ^{meat} lives in the city, cannot

Lecture

[Postpone]

Alimentary

ALIMENTARY

PRINCIPLES

1. Nitrogenous — Ch
2. Oleaginous — Ch
3. Amylaceous — Ch
4. Acidulous
5. Saline
6. Aqueous

Nutritive Niti

NUTRITIVE PRINCIPLES

- Albumen — Vegetable A
 Syntonin — *Plenger*
 Globin — *Gluten*
 Casein — Legumen.

(See 32 470 & 474)

solu... read lock, rendering crossing for pedestrian next to impossible, save at long intervals. Much vexation, much loss of time, and much profanity (I am sorry to add), are the result. Not only that, but the company kept their laborers at work all day yesterday (Sunday) in front of St. Paul's Church, to the great annoyance of the worshippers there. This circumstance has given fresh momentum to the Sabbath Observance Association, who are again thinking of reviving legal proceedings, with a view to stopping all the cars from running on the Sabbath. The jam in Broadway, occasioned by this new link in the railroad chain, will also revive the clamor for the widening of Ann street, as the only available measure of relief.

I have spoken of Old St. Paul's. There, this afternoon, they are continuing the interesting centennial services commenced yesterday, and of which I had something to say, by way of explanation, in my letter of Saturday. The most noteworthy feature was an address by the rector, Rev. Dr. Dix, giving an historical sketch of the parish, from its origin to the present time. The congregation was quite numerous.

The most interesting local political movement to-day is the reunion of the King's county Democracy, who have been for a long time past running separate machines, to the great advantage of the Republicans. Both factions have now united on one and the same county ticket, and it is probable, therefore, that they will elect it by a heavy majority.

The Health Inspector reports 409 deaths in this city last week, a decrease of 66 compared with the mortality of the week previous. There were but three deaths from cholera. The mortality from typhus fever shows a gratifying decrease. On the whole, the health of the city now is about as favorable as it ever was known to be.

The Jews are rapidly multiplying their places of public worship here. To-morrow noon they are to lay the corner-stone of the Temple Emanu-El, at the corner of Fifty-third street and Fifth avenue. This is in the most aristocratic part of the city, and the edifice will be one of the most costly on the island.

A diamond pin valued at six thousand dollars was lost on Broad street to-day, and afterward found by a poor telegraph messenger boy, to whom the owner of the pin gave a check for \$500.

Money was in fair demand this morning, but without variation in rates. Call loans 4 a 5 per cent.; discounts, 5 a 6. The Bank Statement epitomized below is accepted as foreshadowing a still easier market:

	Oct. 20.	Oct. 27.
Loans.....	\$274,156,793	\$274,726,451
Specie.....	7,371,487	7,848,239
Circulation.....	30,452,240	31,434,877
Deposits.....	225,083,853	223,810,672
Legal Tender.....	73,625,459	78,014,925
Clearings for week end, Oct. 20, 1856.....	\$324,721,943	
do. do. Oct. 27, 1856.....	762,226,404	
Balances do. Oct. 20, 1856.....	27,104,911	
do. do. Oct. 27, 1856.....	25,343,792	

Foreign exchange continues firm. Prime bankers', 60 days, 109%; prime bankers', sight, 110%; Paris, bankers', long, 5f. 13%; do. short, 5f. 11%; Antwerp, 5f. 20; Hamburg, 36%; Frankfurt, 41%.

Gold is rather unsteady. The premium is 10 A. M. stood at 145; 11 A. M., 146%; 1 1/2 P. M., 146%; noon, 146%; 1 P. M., 146%; 2 P. M., 146%; 3 P. M., 146%; 4 P. M., 146%. Cash gold was loaned at 1-32 per cent. premium.

The speculative feeling in the stock market was less perceptible this morning than for some time past. The most exciting feature was Pacific Mail, which went up 9 per cent. as compared with Saturday's price. Rock Island was active. The sales at the Board were nearly 3000 shares at 109 1/2 a 109%. Atco and Terre Haute was 4 per cent., and Governmentments from 1/2 to 3/4, but most other kinds were lower.

Later in the day, Governments were quite but firm. The following are the closing prices registered, 1851, 113 1/2 a 113 3/4; Coupons, 1851, 113 1/2 a 114; 5-20 Registered, 1862, 106 a 106 1/2; 5-20 Coupons, 1862, 114 1/2 a 114 3/4; 5-20 coupon, 1864, 110 1/2 a 110 3/4; 5-20 do., 1866, 111 a 111 1/2.

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1873.

Postpone

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In warm climates—that is, from thirty to thirty-five degrees on each side of the equator—vegetable food in some shape or other is the kind chiefly used. As we advance beyond these limits, particularly in the northern hemisphere, the proportion of animal food increases until we reach the Arctic regions, the inhabitants of which live almost entirely on fish and reindeer. With the exception of the people just named, and the inhabitants of the sea coast of Northern Europe and of Western Africa, and some islands, which are supplied with fish in abundance, a great majority of mankind live almost entirely on vegetable substances, and chiefly the farinaceous grains and kindred vegetables—beans, peas, &c.—and tubers, such as the potato and cassava, or the tapioca plant, yam and taro. On this point there is an agreement in practice between the husbandmen of Tuscany, the greater number of whom only allow themselves meat once a week, and the people of Scotland and Ireland, the most of whom have not even this addition to their somewhat scanty allowance of oatmeal and potatoes.

The people of Scotland, hardy, thrifty and acute, clear thinkers and good fighters, have always lived on the simplest vegetable fare—oatmeal, converted into cakes and porridge, to which, of late years, potatoes are added, and the whole eked out with a little barley broth, and in the morning and evening with a medium of milk or butter, but these last articles are often wanting. The traveller, at the table of his landlord or wealthy host, will have an opportunity of enjoying the exquisite flavor of the mutton of the Grampian or Cheviot Hills, but the people at large are strangers to this kind of aliment. They can speak more knowingly of their national dish, *haggis*—a mixture of oatmeal, fat, liver and onions, boiled up in a bag, which was once the stomach of the animal.

If the peasantry of Italy consume little animal food, those of Spain and Portugal consume still less. The chief subsistence of the people of the first-mentioned country is bread of Indian corn, or of wheat, or rice, or chestnuts, according to the region. Chestnuts constitute the chief aliment of the inhabitants of the Appennine regions; the flour from this fruit is rich and sweet and keeps well. The subsistence of the people of Spain is chiefly derived from wheat and other grains, and vegetable substances, to which oil is freely added. Salted and dried fish is, however, consumed by them in considerable quantity, and garlic is a favorite condiment. *Or dieu, l'Espagne, le nord.*

Were we to sum up what might be said of the dietetic regimen of the people of Europe, it would show that those of the northern and central portion of that continent, including Scandinavia, Russia, Germany, Holland, Belgium and France, subsist, in great part, on vegetable food, and thus of the second or inferior of the cereal grains, viz: rye, seasoned with the products of the dairy and a small portion of meat or fish. We say *seasoned*, for the occasional use of animal food makes it the exception rather than the rule in their national dietetics. Among the people of Southern Europe there is a great simplicity in their food, but maize to a great extent takes the place of rye, and wheat is used in greater proportion than it is in the north.

← *Chimney* →
 ↓ *Some space of 1 page for all the additions on this page.* →
 ↑ *more phosphates in animal food; of carrion has more phosphates than contents of* →
 ↑ *Food of carrion has more phosphates than contents of* →
 ↑ *End of 2nd lecture 1868* →
 ↑ *Restlessness & great muscular activity* →
 ↑ *More common - Taps or Copad in a cage.* →
 ↑ *Exclusive fresh water* →
 ↑ *I meat in Arctic regions, e.g. also in herbivorous monkeys.* →
 ↑ *See over, p. 24.* →

little ghee (clarified butter) will endure the
 toil of carrying a heavy load 25, 30, or even
 35 miles a day continuously, without over
 fatigue." Stuart Clark, M.R.C.S., on Hygiene
 of the Army in India.

VEGETABLE
EATERS.

MEAT
EATERS.

A person of vigorous constitution, in good
 health, in a good atmosphere, with no exces-
 sive work, and with ^{plenty of} good vegetable
 food can do without meat; but a person who
 lives in the city, cannot, generally, so well.

Lecture III.

End of 2nd Lecture, 1873.

ALIMENTARY
PRINCIPLES

[Postpone]

Alimentary Principles

1. Nitrogenous — Chiefly Plastic.
2. Oleaginous —
3. Amylaceous — Chiefly Dynamic.
4. Acidulous
5. Saline
6. Aqueous.

Postpone

NUTRITIVE PRINCIPLES

Nutritive Nitrogenous Principles.

- | | | |
|-------------|--------------------|-----------|
| Albumen — | Vegetable Albumen. | Neurin. |
| Synetonin — | Glutin. Myosin | Hematogen |
| Gilrin — | Gluten. | Albumin |
| Casain — | Legumen. | Albumin |

See 32, 40 & 74

The Scotch Highlander is able to walk from 40 to 60 miles a day on his native hills, on no better fare than a dish of porridge & a piece of oatmeal cake, and this chiefly on account of the purity of the air in which his life has been passed. So also the Indians of Argentina, who lives much in the open air and has never more than 2 meals a day (he often eats more than one), consists of chipatties (unleavened cakes) & a

always lived on the simplest vegetable fare—oatmeal, converted into cakes and porridge, to which, of late years, potatoes are added, and the whole eked out with a little barley broth, and in the morning and evening with a medium of milk or butter, but these last articles are often wanting. The traveller, at the table of his landlord or wealthy host, will have an opportunity of enjoying the exquisite flavor of the mutton of the Grampian or Cheviot Hills, but the people at large are strangers to this kind of aliment. They can speak more knowingly of their national dish, *haggis*—a mixture of oatmeal, fat, liver and onions, boiled up in a bag, which was once the stomach of the animal.

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Were we to sum up what might be said of the dietetic regimen of the people of Europe, it would show that those of the northern and central portion of that continent, including Scandinavia, Russia, Germany, Holland, Belgium and France, subsist, in great part, on vegetable food, and this of the second or inferior of the cereal grains, viz: rye, seasoned with the products of the dairy and a small portion of meat or fish. We say seasoned, for the occasional use of animal food makes it the exception rather than the rule in their national dietetics. Among the people of Southern Europe there is a great simplicity in their food, but maize to a great extent takes the place of rye, and wheat is used in greater proportion than it is in the north.

more than
 food of common
 End of 2nd lecture 1868
 Restlessness & great muscular activity
 But, rest common - Type of leopard in a cage.
 Excessive rest activity also in Sublimous Monkeys.
 I must
 See over, p 24.

Scandinavian shoremen, -
 Pemproo much of the time.

The young of birds which are partly granivorous when grown, eat worms & grubs brought to them by the parent; all animal food.

alone.

VEGETABLE EATERS.

MEAT EATERS.

The question cannot be answered physiologically. Experience is ^{here} the true teacher. Vegetarians say that whole races never eat meat. This is true but such people are not vigorous. ^{S. Johnson} On the other hand there are whole races, as the Esquimaux and the inhabitants of the Pampas in South America, who eat only meat.

A person of vigorous constitution, in good health, in a good atmosphere, with no excessive work, and with ^{plenty of} ~~very~~ good vegetable food can do without meat; but a person who lives in the city, cannot, generally, do well.

End of 2nd Lecture, 1873.

Lecture III.

ALIMENTARY PRINCIPLES.

[Postpone] Alimentary Principles

- 1. Nitrogenous — Chiefly Plastic.
- 2. Oleaginous
- 3. Amylaceous — Chiefly Dynamic.
- 4. Acidulous
- 5. Saline
- 6. Aqueous.

Postpone

NUTRITIVE PRINCIPLES

Nutritive Nitrogenous Principles.

- Albumen — Vegetable Albumen. " Neurin.
- ~~Myosin~~ Myosin — ~~Plungen. Fungin~~ Hamat. ~~Albumin~~
- ~~Fibrin~~ Fibrin — ~~Gluten.~~ Elastin.
- Cassin. — Legumen. Lactin. Chondrin

(See pp 40 & 74)

Mother's milk always best for infants, - if the
mother is healthy, or least; if not, wet-nurse; last the
bottle. Absence of nurses in France are fearful.

NATURE PROVIDES ANIMAL FOOD.

CRUELTY.

Hygiene

that
d.
object
als.
from
mi-
ided
books
with
quity.

HAVERFORD COLLEGE.

The Managers of Haverford

Redeign

CHILD'S DIET

As nature furnishes milk to the child, we ~~would~~ conclude that meat is the best food for it. But ~~experience shows~~ ^{commonly} that they get less than adults. Vigorous children can get along well without meat. Feeble children cannot do with-

GUILLOT'S CONCLUSIONS

out ~~it~~. ^{for time to time} Guillet, ^{in France} a Frenchman, weighed infants and came to the conclusion that ^{needs to} an infant ^{of milk} consumes $2\frac{1}{4}$ lbs per day. Feeble infants require animal food. It is a mistake to make feeble ^{them always} infants live on vegetable food. They often require very concentrated food. Sometimes infants who can eat nothing else,

SICK DIET.

can be kept alive on beef tea. — The diet of the sick is classified into low and full diet.

In a French industrial establishment, employing 630 men, mostly vegetarians, the sick fund was constantly in debt. The director introduced butcher's meat into the food of the men; and thereafter the average loss of time for the men fell from 15 to 3 days per annum; saving 12 work-days for each man in the year.

Mother's milk always best for infants, - if the mother is healthy, or best; if not, wet-nurse; last the bottle. Absence of nurses in France are fearful.

NATURE PROVIDES ANIMAL FOOD.

An argument of force, against vegetarians, is that nature provides the infant with animal food.

CRUELTY.

Milk is an animal substance. ~~Vegetarians~~ also object to meat, ^{on the ground that} because it is cruel to kill animals.

Redeemers

This is a very ~~weak~~ objection. We find from the Bible and from the early traces of animal existence, that the beasts were intended to prey on ^{one another} each other. ~~In Hugh Miller's books~~ mention is made of bones being found with the marks of teeth on them, of very great antiquity.

CHILD'S DIET

As nature furnishes milk to the child, we ~~might~~ conclude that meat is the best food for it.

But ~~experience shows that~~ ^{commonly} they get less than adults. Vigorous children can get along well without meat. Feeble children cannot do without ~~it~~.

GUILLOT'S

Guillot, ^{in France} a Frenchman, weighed

CONCLUSIONS

infants ^{from time to time} and came to the conclusion that

under 1 year

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infants require animal food. It is a mis-

take to make feeble ^{them} infants live on vegetable

food. They often require very concentrated food.

SICK

Sometimes infants who can eat nothing else, can be kept alive on beef tea. — The diet of

DIET.

the sick is classified into low and full diet.



* Tissue waste is increased in acute diseases,
even if its products accumulate, un-excreted, in the
blood.

In private practice it generally has been so.

In army hospitals, it is classified into low, half and full diet. This practice is routine. It is time it were ^{somewhat} changed. We do not mean that low diet should be abolished. ^{But} the idea on which it was ^{formerly} based, viz: that there is an excess of vitality that should be reduced, ought to be abandoned. It is not true. ^{As to strength} Sickness is a minus quantity and not a plus one. ^{Excitement is not increased & power} We should not weaken a person in order to make him well. What is the difference between a well and a sick person? ^{Suppose} a person to take ~~the mastic~~ ^{small por.} He does not digest well; his appetite is impaired; and his excretions are diminished. In this febrile state a low diet is necessary. If the elimination by the excretory organs is little, we should not put much into the stomach. But the need of nourishment, is not diminished in sickness. We should not worry the digestive organs, but we should support nature. It has been proved that instead of not giving food to the sick, we should give liquid, concentrated food. The real times for low diets are in the beginnings of sicknesses. ^{especially in} ^{refract. people.} It is surprising to find how

WRONG PRACTICE.

PROPER TIME FOR LOW DIET.

SHOULD GIVE FOOD TO SICK.

Of facts concerning the need of nourishment of a suitable kind ~~only~~ most cases of illness give the true solution of the problem which has been often missed by those who have advocated stimulism or the frequent and large, we may ^{even} say the general use of alcohol in acute diseases: Toxism.

[End of 18th Lecture, 1872.]

End of 1st
Lecture on Alimentation
1875

End of 2nd Lecture, 1867, & 1870.

*Perhaps I may, in some things I am about to say, repeat what you may have heard in the lectures upon Physiology & Institutes of Medicine; but, nevertheless, the statements seem to me necessary for completeness. Possibly I may some times vary a little, though I hope not much, from the accounts you have heard ^{from others} before of the same subjects.

in how considerable a number of patients & cases, early it is an advantage to give ^{concentrated} food in low fever, such as typhus. Beef tea and milk are now given in ~~violent~~ ^{much} ~~maladies~~ ^{very well}. We may often give beef tea instead of the slops (so called) of the sick-room, although some of these as oat-meal gruel, have much nitrogenous matter.

FOOD FOR SICK.

EFFECT OF HARD FOOD.

CONCENTRATED LIQUID FOOD.

NUTRITIVE NITROGENOUS FOOD.

ALBUMEN.

COAGULATION.

SIMILAR TISSUES IN THE BODY.

Heat or bread if given to the sick is not digested. The stomach is irritated and through sympathy, the semi-lunar ganglion is affected. In most instances of sickness, then, concentrated,

liquid food is necessary. In the height of a high fever ^{inflammation} ^{in a period of slender constitution} I have ~~found~~ ^{found} that in half an hour after taking beef tea, copious perspiration and other good effects have followed. ^{See p. 23 for list of classification.} All nitrogenous principles are not

^{equally} nutritive. We will pass ^{lightly} over those which are not nutritive, and treat ^{mainly} of the nutritive. Albumen is

found in the whites of eggs and in the liquor sanguinis, ^{this one (Dalton says) absolutely identical.} It is coagulated by heat at about

145° to 170°. It is also coagulated by alcohol, strong acids, tannin, ^{solts} corrosive salts, and creosote.

Albuminoid tissue is coagulated by the same substances. Some tissues are like albumen although it does not exactly the same; thus the ~~connective~~ ^{connective} tissue

Synton forms
from myosin &c
is first digested
by HCl acid

* DIFFERENCE
BETWEEN
MUSCULIN AND
BLOOD FIBRIN.

~~Musculin~~ differs chemically from blood fibrin,
in being soluble in a solution of hydrochloric
acid, as the latter is not.

Idiosin chiefly (some osmazone perhaps) in brown part of beefsteak;
Kusley's, the existence of fibrinogen in the liquor sanguinis, which,
when mixed with globulin of the corpuscles, makes solid fibrin, is at
least improved. — White corpuscles (see L.S. Stille's paper)

Paraglobulin.

Möhler says no fibrin in
the blood —

very jelly, throw away!

COAGULATION OF
CASEIN.

CURDLING OF
MILK.

Casein is precipitated
coagulated by feeble acids, as acetic,
lactic &c. which will not coagulate albumen.
Thus in the curdling of milk, the casein ^{change in the composition of} is instigated, the organ
of milk ^{which} into the lactic acid then curdles the casein ^{is unchanged.}

When dissected at Skuller Islander

TOOTH-ACHE

mucus and nervous is taken advantage of, by creasote. Sometimes

OPACITY OF THE AQUEOUS HUMOR.

comes of the eye, is coming in contact with it as a eye food is very great.

MUSCULIN.

the blood and albumen is found in coagulum good. Myosin of the time of Liebig it

FIBRIN.

the fibrin of the blood than fibrin. Dogs fed on ~~Amputation~~ 55 days not well known.

SPONTANEOUS COAGULATION.

it is going to make tissue or ~~cremationous~~ ^{Probably, it will make only fibrous, mechanical tissues.} We do know that it coagulates spontaneously, but why it does so, we cannot tell.

THEORIES OF RICHARDSON AND LISTER.

Richardson's theory that it is ammonia that prevents this coagulation, is not accepted. ^{Pricker's} Lister's theory is better. ^{Crystallinity} Next to fibrin

CASEIN.

comes Casein. It is found in milk and cheese and a little in blood. (and in certain tissues.) Cheese is nearly pure casein. It would be very valuable as food but that it is so tough.

Shuller Islander
hook cut ^{crystallinity} balance
Lower classes in England
abhor venison &
other game.

Australians are
shocked at idea of
eating oysters.

S. sea islanders
won't drink milk.

S. American strong
preserved against
eat turtle

h-ache
the aqueous
of lead
men as
d it in
gettable at
almost
are equally
t. Before
d from
nutritious
d 31 days
brin is
hether it

W. ...
Africa, S. Americans eat
working Calligata

Cockchafers (p. 30)
eaten in Italy
Canned.

Eggs in England
eat hedgehogs.
Frank whales & whales

DIFFERENCE
BETWEEN
MUSCULIN IN
BLOOD FIBRIN.

Australians eat snakes
moths & grub worms
S. sea islands eat dogs
& rats, not milk
Chinamen eat rats & earth
worms, Tartars horses
Old Romans eat rats &
Vermorel, wood ants & mice



thus
who mixed with
cast improved.

Synton formed
from myosin &c
in first digestion
or by HCl acid

hemically from blood fibrin,
a solution of hydrochloric
is not. Dilute HCl obtains Syntonin
from fibrin
some perhaps in brown part of heftan, very generally thrown away!
brinogen in the liquor sanguinis, which,
puscles, makes solid fibrin, is at

White corpuscles (see L.S. Stillé's paper)
Parafibrin. Mähler says no fibrin in
two blood

COAGULATION
OF
CASEIN.

CURDLING OF
MILK.

Casein is precipitated
coagulated by feeble acids, as acetic,
lactic &c. which will not coagulate albumen.
Thus in the curdling of milk, the casein ^{change in the occurrence of} is instigated, the sugar
of milk ~~into~~ lactic acid ^{which} then curdles the casein ~~not understood.~~

When dissolved they resemble, still more albuminoid.

mucus and nervous tissues. This resemblance is taken advantage of, in curing a tooth-ache by creosote. Sometimes an opacity of the aqueous humor of the eye, is caused by sugar of lead coming in contact with it as a eye wash. The value of albumen as food is very great. In meat, we find it in the blood and albuminoid tissues. Vegetable albumen is found in cereal grains. They are almost equally

TOOTH-ACHE

OPACITY OF THE AQUEOUS HUMOR.

MUSCULIN.

FIBRIN.

SPONTANEOUS COAGULATION.

THEORIES OF RICHARDSON AND LISTER.

CASEIN.

good. Myosin (or syntonin) comes next. Before the time of Liebig it was not separated from the fibrin of the blood. * It is more nutritious than fibrin. Dogs fed on fibrin lived 31 days on ~~myosin~~ ^{albumen}, 55 days. The use of fibrin is not well known. We do not know whether it is going to make tissue or whether it is excrementitious. ^{Probably it will make only fibrous, mechanical tissues.} We do know that it coagulates spontaneously, but why it does so, we cannot tell. Richardson's theory that it is ammonia that prevents this coagulation, is not accepted. ^{Pricker's} Lister's theory is better. ^(Catalytic) Next to fibrin comes Casein. It is found in milk and cheese and a little in blood. (and in certain tissues.)

Casein. It is found in milk and cheese and a little in blood. (and in certain tissues.) Cheese is nearly pure casein. It would be very valuable as food but that it is so tough.

Cheese is nearly pure casein. It would be very valuable as food but that it is so tough.

Order of

Nutritive Values;

Nitrogenous

Principles;

Myosin

(Gluten, Fungin)

Neurin

(Protogon)

Albumen

(Vegetalbum)

Hamatin

(Cruorin)

Casein

(Lactogen)

Erythrin

~~Gluten~~

~~Albumen~~

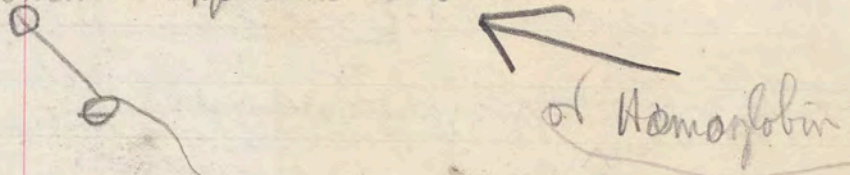
Elastin

(Elastin)

(Fibrin)

Gluten

Cruorin, & Hemoglobin, the color matter of unchanged blood ^{compounds}
 Hematin & Hamatin, ^{Hamatoidin} the same somewhat changed —
 Erythrin in crystalline lens also —



* Marshall rather question the poverty of
 Relativous food. Probably the best view is, — that
 chondrin, of the tissues, is nutritious, but gelatin, got
 by long boiling, is an educt, from the natural gelatinous material,
 & differing somewhat in its properties. Relatin may be a force-food.
 — Voit.

Coag,

CHEESE.

It is not very available as food, but it helps to digest a large dinner. An old proverb says:

"Cheese is a surly elf,
Digests all things but itself." (Code of Alernum)

It acts like the pepsin of the gastric juice. By its spontaneous decomposition, it acts as a ferment.

When the pepsin is exhausted by a large dinner, a little cheese, especially if it be old, helps the digestion greatly. Legumin is vegetable casein.

LEGUMIN.

PEAS & BEANS.

It is found in peas, beans, lentils, &c. These ^{almonds} would be the most wholesome ^{of vegetable} foods, but for the fact that they are deficient in phosphorus. They are therefore ^{fully} not equal to bread. Neurin is

Formed from proteogen
NEURIN.

found in brains. Brains are nourishing; calf's-head soup is a well known article of food.

GLOBULIN.

Globulin, and ^{of serum} hematin, ^{of serum} hemato-crystallin are found in the blood. They ^{enter into the} grave. Hematin con-

HÆMATIN.

tains iron. It is probably in this way that ^{much of the} our bodies obtain iron from ^{blood} hematin. Gelatin is the least-nutritious of these ^{animal} principles. Since the ob-

GELATIN.

NOT NUTRITIOUS.

servations of Magendie, jellies are not considered good food for convalescents. This was proved in two ways. Dogs, fed on it alone, died sooner than when fed on any other ar-



* This is most of all important in connection with nitro-
 -oxygen substances, — as most complex and decomposable
 of all organic materials.

Paraffin ^{over} — melts at 300°

ANTI-SEPTICS.

VINEGAR.
 AND
 OIL.

SYRUP.

Other Food-preserving Substances
 are vinegar (as in pickling) and oil. The latter
 is used for small fish as sardines & anchovies,
 and in Italy, to keep wine by floating on its sur-
 face and excluding the air. In this its action
 resembles that of syrup in preserving fruits.

due, so far as could be ascertained, in both cases, to some degeneration or alteration of the mucous membrane of the uterus; 3, the same results followed the use of the galvanic pessary: the hemorrhage was supplanted by a profuse leucorrhœa, with some pelvic or uterine pains; 4, the recovery seemed to be complete in both cases, one menorrhagic period happening to both several months later, but not followed in either case by a second.

POPLITEAL ANEURISM CURED BY CONSTRICTION OF THE FEMORAL ARTERY (*New York Medical Journal*, May, 1874).—Dr. N. A. Robbins reports a case of popliteal aneurism of about three months' standing, occurring in a negro, aged 30. His leg was drawn up, swollen, and œdematous, and he was delirious from the excessive pain. The femoral artery was cut down upon in Scarpa's space, exposed, and Dr. Speir's artery-constrictor was applied. The instrument was kept on about three minutes, and then removed; pressure was kept on the femoral for ten minutes, in order to favor the formation of a clot at the constricted part. The wound was closed by wire sutures. The pain seemed to cease immediately after the operation, and for the first time for weeks the patient slept soundly. In ten days the wound healed, and in three weeks he was walking about almost entirely cured.

TREATMENT OF CHOLERA BY THE HYPODERMIC INJECTION OF CHLORAL HYDRATE (*London Lancet*, May 2, 1874).—Dr. Hall, in a paper published in the *Indian Annals of Medical Science*, states that in the cold stage of cholera, instead of exhaustion of the nervous system, as is generally supposed, there is intense irritation of certain sets of nerves. He suggests that the principle which should guide us in the treatment of this condition is the endeavor to quiet the nervous system by the action of pure sedatives, and recommends the practice of hypodermic injection of sedatives in the stage of collapse. Subsequent experiments as to the physiological effects of chloral hydrate have induced Dr. Hall to make a trial of this agent in cholera, and his practice has been followed by others with satisfactory results, so far as the reports at present extend.

ACUPUNCTURE IN DROPSY (*The British Med. Jour.*, May 23, 1874).—Dr. W. Munro reports two cases of general œdema, one dependent on organic disease of the heart, the other on anæmia. In both cases all kinds of diuretics were tried without success, but finally the former case was relieved and the latter cured by the frequent puncturing of the distended skin with small sewing-needles, making twenty or thirty punctures two or three times daily. This procedure always gave immediate relief to the dyspnœa and other distressing symptoms.

APPLICATION FOR BURNS.—M. Lebigot recommends the following mixture as having been very successful:

- R Cape aloes, 4 ounces;
- Water, 10 ounces;

emarked here that no
 iple will support life; nei-
 at pimplerystone.
 lass. We must have all.
 ncrement of the dogs so
 that nearly all the gela-
 the bowels, unchanged.
 this, because ^{Chondrin, Isgelatin} gelatin is the
 of the body. It is supposed
 issue could be removed and
 fect skeleton of the form
 atin must have some use
 ason therefore that jelly
 aps that it is changed
 iling. We will next take
 ; but before this we will
 of preserving food*
 ptics for Food.

- Nitre
- Glycerin
- Sulphites
- Charcoal
- Exclusion of Air

dryness, Exclusion of Air
 All nitrogenous substances decay soon. To prevent
 or putrefy

#

THE DIETETIC TREATMENT OF DISEASE (*The Lancet*, May 23 and 30, 1874).—Dr. E. A. Parkes found, in the course of some experiments on healthy men with different kinds of food, that a diet of dried meat and bread, without fats or vegetables, produced in two or three days very great indigestion and depression of spirits, with an acneform eruption on the face and shoulders. These symptoms were at once removed by adding starches and butter to the same diet. This observation seems important in connection with dieting in fevers, where often such quantities of animal broths are given, and, with the exception perhaps of a little arrowroot, no starches and no fats are ordered. It might be that the best treatment for "irritable gastric dyspepsia" would be not to give vegetables at all or any nitrogenous food, but for two or three days to let only starches and fats, in some digestible form and without salt, enter the stomach. A meat diet has in some cases seemed to have a special influence on the skin,—psoriasis inveterata and eczema squamosum having been cured by Bantingism, omitting the alcohol used in that system. A purely non-nitrogenous diet lessens in a very great degree the acidity of the urine, and does so by preventing the formation of the acid. It also markedly reduces the power of the heart within twenty-four hours after the commencement of the diet. The beat is more feeble, the pulse is smaller and softer, and, if the sphygmograph is used, the height of the up-stroke is only half of what it is in the normal state of the man. This action may be useful when we wish to subdue a powerfully-acting and excited heart, or in the treatment of aneurisms. The men experimented upon took, on an average, ten ounces of arrowroot, six ounces of sugar, and two and one-third ounces of butter in each twenty-four hours. This quite satisfied hunger, and maintained weight and health. If it be deemed necessary to add nitrogen without giving meat or bread, a little ground rice may be added, one ounce of which contains three and a half grains of nitrogen; or an egg may be given, one two ounces in weight yielding about nine and a third grains of nitrogen. In regard to the influence of alcohol on appetite and digestion, the evidence obtained from three healthy men as to any increase of appetite or more vigorous digestion from small doses of alcohol was found to be rather more negative than positive, anything over two fluid-ounces of alcohol being found to lessen appetite if the stomach was empty, and to injure digestion. The quantity of alcohol given for the particular purpose of increasing appetite should not exceed one fluidounce of absolute alcohol in a day, and half an ounce is often enough. It should be given with food, and for many patients the best plan is to give rectified spirit, properly disguised, as a medicine. If a fattening effect is desired, and no gouty tendencies exist, beer containing a good deal of malt extract is suitable; if salines and acids seem desirable for the kidneys, the light French wines are appropriate; but in any case a natural wine as little doctored as possible should be insured.

*
-ozum
fall

ANTI-SEPTICS.

VINEGAR.
AND
OIL.

SYRUP.

connection with nitro-
-s and decomposable

lb at 3000

substances
d oil. The latter
lines & anachories,
floating on its sur-
-n this its action

remove out of syrup in preserving fruits.

title. It may be remarked here that no one proximate principle will support life; neither will any one class ^{of such principles alone.} We must have all.

EXAMINATION OF EXCREMENT.

By examining the excrement of the dogs so fed, it was found that nearly all the gelatin passed through the bowels, unchanged.

GELATINOUS SKELETON.

We are surprised at this, because ^{Chondrin & gelatin} ~~the~~ most abundant tissue of the body. It is supposed that if every other tissue could be removed and this one left, a perfect skeleton of the form would remain. * Gelatin ^{is chondrin} must have some use

CHANGE IN BOILING.

in the body. The reason therefore that jelly is ^{poor} bad food, is perhaps that it is changed by the process of boiling. We will next take up ~~the~~ ^{poor} gelatinous foods; but before this we will speak of the modes of preserving food.*

ANTISEPTICS OF FOOD.

The Antiseptics for Food.

Salt.

Vinegar

Nitre

Sugar.

Oil

Glycerin

Spices.

Charcoal

Sulphites

Heat

Charcoal

Cold

Exclusion of air

Dryness, Exclusion of air

*Pyogenic acid
or ...*

All nitrogenous substances decay soon. To prevent

A (1)
 ^



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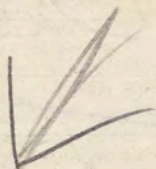


(3)
 A new mode (1870-1) used in Texas, with asserted
 success — said to be by injecting air at a low temperature, &
 then sealing up.

A (1)

(4)
 Dr H. Endemann of Boston proposes
 to keep meat by cutting it in
 slices, drying below 140° (so as
 not to coagulate alb. & fibr.) and
 then grinding to powder in a mill,
 It can then be prepared for use at any
 time with water. In a hot air chamber
 it can be dried in two hours under 140°.

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(3)
 A new mode (1870-1) used in Texas, with asserted
 success — said to be by injecting air at a low temperature, &
 then sealing up.

Their decomposition various substances are used. When the article is used for food,

many things are used which anatomical subjects would be deleted.

WASHINGTON, March 16. THE VIRGINIA DELEGATION. The delegation appointed by the Legislature of Virginia called yesterday upon the Senate Committee on the Judiciary. The interview was of a highly satisfactory character, and the latter was assured of the earnest intention of the State to return to her place in the Union under the terms proposed by Congress. The delegation, just previous to their returning to Richmond, visited the President of the United States, who, according to the statement of one of the members of the delegation, said he was appraised of the object of their mission; that notwithstanding his opposition to the Reconstruction bill it was now a law of the land, and he should faithfully execute it; that he thought the Legislature had done right by promptly accepting its terms, which he hoped would tend to alleviate the bitterness produced by the late war, and at an early day restore the Southern States in all their relations to the Federal Government.

preserving
used which
Salt
it is not as
it as
fruits, is
also used.

SALT.

combines with a good as fresh.

SUGAR.

well. Sugar is

SPICES

pecially. Spices are

NITRE

Formerly saltpetre

SULPHITES.

good, but it gives a cloying sweetness to the meat. Sulphite of soda prevents the action of oxygen. Hence farmers sometimes put it in their cider, Charcoal absorbs gases. The conditions favorable to preservation are, a very high temperature, or a very low one, and dryness. The latter is as effective as the former.

CHARCOAL

in their cider, Charcoal absorbs gases. The conditions favorable to preservation are, a

HEAT

very high temperature, or a very low one, and

COLD

dryness. The latter is as effective as the

DRYNESS.

former. In South America dried meat is eaten. In the West, pemmican, made

(This is the rule in the sun for two weeks) CANNING.

of buffalo's meat dried, is much used. lately meats and fruits have been preserved by means of air-tight vessels. We thus not only preserve the article, but also preserve its original taste.

Heating & sealing.

A (1)

(4)

Dr H. E. ...
 ...d dollars, shall be impo...
 ...demands legislation more urgent...
 ...the crowding of people in halls from...
 ...which the modes of egress are narrow and...
 ...cramped.

AGED MEAT.—A letter from Stockholm reports that at a meeting of what is known as the Idun Society, recently held there, the members eat for supper beef that was forty years old. In 1827 Captain Parry placed at School Point, Spitzbergen, a depot of meat. The flesh was in tin boxes, buried beneath a quantity of stones. The white bears had displaced some of the stones and destroyed several of the boxes, but a few still remained intact, and were brought to Sweden by a Swedish scientific expedition. One of these boxes had been given to the Idun Society, who found the meat perfectly eatable and of good flavor.

BRITISH COLUMBIA.—In the Canadian federation bill now before the English Parliament, it is provided that British Columbia may ultimately be admitted to the Dominion. The people of the province propose to hold a public meeting for the purpose of discussing the question.

...ston propon...
 ...in...
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 ...mill...
 ...at any...
 ...hot air chamber...
 ...hours under 140°.

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 it can be a...

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(3)

A new mode (1870-1) used in Texas, with admitted success — said to be by injecting air at a low temperature, & then sealing up.

Their decomposition various substances are used. When the article is not intended for food, many things are used. Thus in preserving anatomical subjects, substances are used, which ^{as chloro, chloride zinc, & sulphuric} would be deleterious if put on food. Salt

SALT.
SUGAR.
SPICES
NITRE
SULPHITES.
CHARCOAL
HEAT
COLD
DRYNESS.
CANNING.

combines with albumen. Salt meat is not as ~~good~~ ^{now} as fresh. We cannot live on it as well. Sugar is used for preserving fruits, especially. ^{Vanilla, cloves, nutmeg...} Spices and sulphites are also used. Formerly salt petre was ^{much} used. Glycerine is ^{efficient} good, but it gives a cloying sweetness to the meat. Sulphite of soda prevents the action of oxygen. Hence farmers ^{sometimes} often put it in their cider, ^{or as a preservative for their property for keeping} Charcoal absorbs gases. The ^{exclusion} conditions favorable to preservation are, a very high temperature, or a very low one, and dryness. The latter is as effective as the former. ^{is} In South America dried meat is ^{much} used. In the West, pemmican, made of buffalo's meat dried, is much used. ^{of the} lately ^{meats} meats and ^{fruits} fruits have been preserved by means of air-tight vessels. We thus not only preserve the article, but also preserve its original taste.

+ Heating & sealing.

Walrus's

Esquimaux, seals, or caribou's fat - Ghee, a
sort of butter - Egyptian, buffalo butter - Station or Spanish
peasant olive oil - ^{cow's} butter ^{hops} all over the
civilized world.

They use ^{almonds} bran, instead of man.

Dr. Simpson observed that in wool factories, where a
great deal of oil is used, scrofula is rare among those em-
ployed. Dr. Hughes Bennett states that oilmen, cooks,
butchers, tanners handle only things ^{less often} than other than con-
sumption. Dr. Walker reports that of those dying of consumption
between 15 & 25, 9/10ths have never used fat meat.
(Woolley & Yocum)

OLEAGINOUS FOOD.

It is both veg. & animal in origin.

We will next treat of oleaginous food. Fats and oils are contained in the proximate principles, as olein, ^{palmitin} margarin, and stearin. Each of these is composed of an acid and a base. This base can be separated by an alkali, by the process of saponification. This process takes place in digestion.

SAPONIFICATION

Olein, in olive oil, is the most liquid of these, ^{palmitin} margarin, is next, and stearin next.

USES OF FAT.

Fat is needed in the body. From pole to pole, wherever man is, he consumes fat.

TO MAKE TISSUE, TO BURN,

Fat has several uses. 1st. It makes fatty tissue. 2nd. It acts as fuel. As oil burns well in the open ^{or many lamps,} air, so in the blood it does ^{also.}

TO AID DIGESTION.

3rd. It aids the ^{assimilation} digestion of other food. In very small quantities it is good, but in large quantities it is not, as any one may test by eating a pound of butter. 4th. It aids assimilation. It is supposed that it may have something to do with the formation of cells. If we let a drop of oil fall into albumen, it will collect a thin membrane around it. A certain proportion of fat is necessary. In tuberculosis a result of its deficiency

TO SIMULATE.

Albumen

Bantingism - Cod Liver Oil. [A. Smith's case] 41
 [End of 3rd lect. 1873]

AMYLACEOUS
FOOD.

PROPORTION
OF OXYGEN.

DR. LEIDY'S
EXPERIMENT
OF BEES.

NEGROES.

We will next consider amylaceous food, as starch and sugar, with dextrin intermediate; also gum. Amylaceous food differs from oleaginous in the proportion of oxygen being the same as in water. Carbo-hydrates, or amylaceous foods, are very important. They constitute ^{the} bulk of vegetable food. They help to make ^{at least fatty} tissue. Dr. Leidy fed bees on sugar and they continued to make wax. It was objected to this experiment that the sugar was impure. That sugar may be transformed into tissue is proved by the fact that during the harvest season in the ^{W. Indies} south the negroes grow very fat from

beating sugar cane. Chamois hunters - barometer sugar, for force.

Bantingism! ← Lecture IV. →

AMYLACEOUS
GROUP

STARCH
FOOD

Price of a page

Amylaceous Group. (Dr.)

Starch	C ₂₄	H ₄₀	O ₂₀
Gum	C ₂₄	H ₄₂	O ₂₄
Dextrin	C ₂₄	H ₄₂	O ₂₄
Sugar	C ₁₂	H ₂₂	O ₁₁
Cellulose	C ₂₄	H ₄₀	O ₁₀
Lignin	C ₂₄	H ₁₆	O ₄
Schlerogen.	C ₃₅	H ₂₄	O ₂₀

- Starch Foods.
 Wheat Starch
 Potato "
 Corn "
 Arrowroot
 Sago
 Tapioca
 Cassia. &c.

Over

Lectures
Milk

[omit in copying]

Wöhler (1871) thus:
Carbohydrates.

or double?

Wöhler 127

Glucose, Dist. sugar -
Grape sugar $C_6 H_{12} O_6 =$ Carbon 6, Water 6 ($C_{12} H_{24} O_{12}$)
Crystallizable, fermentable, solution rotates plane of polarization to the right.

Fruit sugar - $C_6 H_{12} O_6$, with glucose in fruits & honey
not crystallizable - fermentable - sol. rot. pl. pol. to left.

Lactose $C_6 H_{12} O_6$ - made from lactin by heating with dilute acids.

Cane sugar $C_{12} H_{22} O_{11}$ - crystall. - not fermentable -
a little in new fall (especially unripe) fruits & - sol. rot. pl. pol. right

Sugar of milk $C_{12} H_{22} O_{11}$ - changed by yeast into lactose & glucose
crystall. & fermentable
ind. rot. pl. pol. right

End of 3rd Lecture,

1867 & also 1868, & 1869.

Cellulose	$C_6 H_{10} O_5$	$(= C_{12} H_{20} O_{10})$
Starch	$(C_6 H_{10} O_5)_x$	$C_{12}, \text{water } 10$
Glycerin	$C_6 H_{10} O_5$	
Gum	$C_6 H_{10} O_5$	
Dextrin	$C_6 H_{10} O_5$	

→

Starch, 12 Carbon, 10 water
Cane Sugar
Sugar of Milk } 12 C 11 water
Grape Sugar 12 C 12 water

dry or humid wall, without diffusion; next, variation of temperature where there is no change of pressure; and third, variation where there is such change. With constant pressure, there is fall of temperature on the side where the denser gas is; and rise on the other side. Each current seems to have a heating effect where it enters the porous wall and a cooling one where it issues. With change of pressure, where this rises within the vessel, through lighter gas, the temperature slightly increases, pressure tends to equilibrium. Where

NON-NUTRITIVE FOOD. AMYLACEDOUS

There are not nutritive

are in the foregoing list. ~~The~~ ^{or double} ~~is~~ $C_{12}H_{10}O_{10}$; gum $C_{12}H_{11}O_{11}$; dextrin $C_{12}H_{12}O_{12}$; sugar, $C_{12}H_{14}O_{14}$; cellulose $C_{12}H_{10}O_{10}$; lignin, $C_{12}H_8O_8$

h are be so, starch

CELLULOSE AND LIGNIN. SCHLEROGEN

Cellulose and lignin are found in the solid or woody parts of plants. ~~Woody~~ ^{these} ~~is~~ ^{chemically} ~~divided~~ ^{separable} into two substances, one of which is schlerogen

$(C_{35}H_{24}O_{20})$ This is found in ^{nut shells,} rinds and cores of ^{hard wood bark.} fruit and in bran. ^{act as food} It cannot support life itself, but, ^{& more assimilable} with it, is a nourishing material; hence by throwing the rind of a fruit away something is lost. ^{Beechwood bread, Carolina of Mexico, etc. Bran} We will first treat of sugar. We use it almost as a ^{condiment or} luxury alone. It is eaten ^{or condiment.} more than any other luxury. So much is consumed that it is a source of considerable revenue to ^{Some} governments. We ^{perhaps} undervalue its value. There are ^{principal} two kinds of sugar, cane, and grape

SUGAR.

TWO KINDS.

Both, ^{as used for food, are exclusively of vegetable origin.} as used for food, are exclusively of vegetable origin. There is much interest attached to the changes which take place in ^{& sap or other juices,} seeds, during the process of ^{growth of plants & ripening of fruits.} germination. The starch, stored up in the ^{for instance,} seed, is changed into sugar and afterwards, to an acid. If this process, which requires ^{many fruits,} diastase, continues,

CHANGES IN THE PROCESS OF GERMINATION.

Both, as used for food, are exclusively of vegetable origin. There is much interest attached to the changes which take place in seeds, during the process of germination. The starch, stored up in the seed, is changed into sugar and afterwards, to an acid. If this process, which requires diastase, continues,

Der Naturforscher, February.—We may first note, in this number, an account of some valuable researches by MM. Pettenkofer and Voit, as to the significance of the carbohydrates in nutrition. The authors conclude that carbohydrates, in the animal system, always pass entirely into carbonic acid and water, and do not produce fat; but they save (ersparen) the fat produced from albumen, and this in proportion to the quantities of the albumen-fat and the carbohydrate.

1874

le? rates 6 (C₁₂H₂₂O₁₁)

rotates plane of polarization of light to right.

Expect 12%

Fruit sugar - C₆H₁₂O₆, with glucose in fruits & honey, not crystallizable - fermentable - sol. rot. pl. pol. to left.

Lactose C₆H₁₂O₆ - made from lactin by heat with dilute acids.

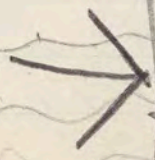
Cane Sugar C₁₂H₂₂O₁₁ - crystall. - not fermentable - a little in new fall (especially unripe fruits) - sol. rot. pl. pol. right

Sugar of Milk C₁₂H₂₂O₁₁ - changed by yeast into lactose & glucose crystall. & fermentable and gritty

End of 3d Lecture

1867 & also 1868, & 1869.

Cellulose	C ₆ H ₁₀ O ₅	$(= C_{12}H_{20}O_{10})$ $C_{12}, \text{water } 10$	Starch, 12 Carbon, 10 water Cane Sugar Sugar of Milk } 12C 11 water Grape Sugar 12C 12 water
Starch	(C ₆ H ₁₀ O ₅) ^x		
Glycerin	C ₆ H ₁₀ O ₅		
Gum	C ₆ H ₁₀ O ₅		
Dextrin	C ₆ H ₁₀ O ₅		



NON-NUTRITIOUS
AMYLACEOUS
FOOD.

There are some amylaceous substances which are not nutritious. All that have any claim to be so, are in the foregoing list. (The composition of starch is $C_{12}H_{10}O_{10}$; gum $C_{12}H_{11}O_{11}$; dextrin $C_{12}H_{12}O_{12}$; sugar, $C_{12}H_{14}O_{14}$; cellulose $C_{12}H_{10}O_{10}$; lignin, $C_{12}H_8O_8$)

CELLULOSE
AND
LIGNIN.
SCHLEROGEN.

Cellulose and lignin are found in the solid or woody parts of plants. ~~Woody~~ ^{these} ~~is~~ ^{chemically} ~~divided~~ ^{separable} into two substances, one of which is schlerogen ($C_{35}H_{24}O_{20}$) This is found in rinds and cores of fruit and in bran. ^{with shells,} ^{hard wood bark.} It ^{act as food} cannot support life itself, but, ^{& more assimilable} with it, is a nourishing material; hence by throwing the rind of a fruit away something is lost. ^{Beechwood bread. Cereals of Mexico etc. Bran} We will first treat of sugar. We use it almost as a luxury alone. It is eaten more than any other luxury. So much is consumed that it is a source of considerable revenue to some governments. We ^{perhaps} underrate its value. There are two kinds of sugar, cane, and grape sugar, or glucose. ^{Both, as used for food, are essentially of vegetable origin.} There is much interest attached to the changes which take place in seeds, ^{during the process of germination,} ^{growth of plants} ^{& ripening of fruits.} ^{& other juices,} The starch, stored up in the seed, ^{for instance,} is changed into sugar and afterwards to an acid. If this process, which requires diastase, continues,

SUGAR.

TWO KINDS.

CHANGES IN THE
PROCESS OF
GERMINATION.

condiment or
or condiment.
Some
principal
Both, as used for food, are essentially of vegetable origin.
during the process of germination, & other juices, growth of plants & ripening of fruits. for instance, during the process of germination, & other juices, growth of plants & ripening of fruits. If this process, which requires diastase, continues,

* Cane sugar in ^{CANE} ~~beet~~, sorghum, ^{beet root,} maple, date, manna;
 Grape in ⁱⁿ honey, many fruits; C_3 or starch.

Total yield of sugar cane about 2000,000 tons yearly -
 U.S. consume 500,000 tons sugar & 16000,000 molasses annually.

→ End of 3d lecture, 1870 ←

MOLASSES.

Contains ^{Some} free acetic ^{the unrefined} acid, and ^{Sugar-house or plantation} other impurities. At the purest, it should be but moderately used - as it may cloy and cause indigestion. In children, it often over-encourages the desire for food, so as to cause them to eat to excess. This interferes with the beneficial use derivable from its laxative property.

Worms

[Space of 1/4 page]

(See Robinson on Brown Sugar) ^{100,000} ^{250,000} ^(in a pound)

not further (as it does not usually in the living plant or fruit)

we will get alcohol, ~~with~~ carbonic acid and finally acetic acid. These results are artificial obtained for

CANE SUGAR.

The sugarcane

Cane sugar is the most important. It was originally an Eastern plant but is now cultivated in the West Indies.

Saccharum officinarum Sacchar

A gigante

A single cane yields from 8 to 22 per cent of sugar, but the waste is so great that

WASTE.

only about 6 per cent gets to market. There is no doubt unnecessary waste. By pres-

MOLASSES.

sure, and by clarifying the juice and then boiling and draining, the waste would be less. Molasses is the drainage after the sugar has been removed.

Sugar is obtained as

It is afterwards refined.

BROWN SUGAR.

Brown sugar is the most impure. It contains earth, acid and ~~acari~~ which cause what is known as "grocer's itch." The amount of water it contains, is so great, that many think it is cheaper to use white.

IMPURITIES.

BEET SUGAR.

Beet sugar is used ~~only~~ in Europe.

MAPLE SUGAR.

Millions of pounds of maple sugar are still made in this country. It is obtained by tapping the bark during the spring while the sap is going up.

principally & largely

especially in the N. & W.

† Sorghum ^{or Sorgho} is now largely grown in
 several parts of this country; "Sorghum Nigrum" -
 introduced into this country in 1854. - In 1857, Dupree, from
 South Africa; several varieties. Kater, ¹⁸⁵⁹, "Otakeeta cane",
 & Liberian cane.

† Liquid glucose is made cheaply in Germany,
 & imported here as a substitute for or adulteration of
 sugar cane molasses.

Fruit-sugar, Möhler says, is to be dis-
 tinguished from grape sugar: the latter crystallizes,
 fruit sugar not; both fermentable; gr. sug. polarizes
 ray of light to right, for sugar to left.

The Sugar Maple is a beautiful tree. On an average, each tree yields 200 lbs of sugar. Maple sugar has a sweet taste but cloyes so.

and the great excess of carbonic acid which the water contains particularly enables it to act strongly on the metallic substances of the apparatus; a truth of which the reader will find no difficulty in convincing himself, by suffering a stream of sulphuretted hydrogen gas to pass through the water." And in a note to this, "Some manufacturers have been hence induced to construct the apparatus for manufacturing soda water wholly either of earthenware or of glass."

The following reminds us of a recent report of the Massachusetts State Board of Health:—

"The leaves of the cherry laurel, *Prunus lauro-cerasus*, a poisonous plant, have a nutty flavor resembling that of the kernels of peach stone or of bitter almonds. It has been asserted, that the laurel poison in custards and other articles of cookery is,

SORGHUM.

Sorghum or as good as cane; it may yet be made

INDIAN CORN.

There is a sugar which is found in Indian corn; but not profitable in amount.

DATE PALM.

The date-palm of the East, yields sugar, like that of the cane.

GRAPE SUGAR.

Grape sugar may be seen in raisins. It is not as good as cane sugar, and is used to adulterate it. It is less soluble & less crystallizable than cane sugar; it is made cheaply by the action of sulphuric acid. It is found also in berries, but is not manufactured from them.

Sometimes

HONEY.

Honey contains it, flavored by certain aromatic substances, according to the flowers from which the honey is gathered. Certain honey, as Trebizonde honey is poisonous. Xenophon mentions the poisoning of an army by honey.

POISONOUS; AS TREBIZONDE HONEY.

A few words only may be said concerning here

MAPLE-SUGAR. — According to the last census returns, Vermont is the banner State for maple-sugar, reporting a yield of almost ten million pounds. The production of New York is somewhat larger, but nothing compared with the difference in area. The only other States which return more than one million pounds are Michigan four million, Ohio three and one quarter million, Pennsylvania nearly three million, New Hampshire two and one quarter million, Indiana one and one half million, Massachusetts a few pounds more than a million. The total production is forty million pounds. The total production of maple molasses is one and a half million gallons, of which Ohio returns nearly four hundred thousand gallons, Indiana nearly three hundred thousand, Kentucky one hundred and forty thousand, and Vermont only sixteen thousand gallons.

Introduced into this country in 1854. — In 1857, Dr. Beecher, from South Africa; several varieties. Kater, ¹⁸⁵⁹, Otakeeta cane, & Liberian cane.

Liquid glucose is made cheaply in Germany, & imported here as a substitute for or adulteration of sugar cane molasses.

Fruit-sugar, Wöhler says, is to be distinguished from grape sugar: the latter crystallizes, fruit-sugar not; both fermentable; gr. sug. polishes very by light & night, for sugar to left.

The Sugar Maple is a beautiful tree, and a ready grower. ^{one or two} - 5
On an average, each tree yields a pound of sugar ^{each bushel}. Maple sugar is very pleasant to the taste but cloyes sooner than any other.

SORGHUM.

Sorghum or Chinese sugar is not as good as cane; It cloyes soon. Perhaps it may yet be made equal to ^{Cane-Sugar} any other.

INDIAN CORN.

There is ~~a~~ sugar which is found in Indian corn; but not profitable in amount.

DATE PALM.

The date-palm of the East, yields sugar, like that of the cane.

GRAPE SUGAR.

Grape sugar may be seen ^{readily} in raisins. It is not as good as cane sugar, and is used to adulterate ^{it}. ^{But will ferment} It is less soluble & less crystallizable than cane sugar. It is made cheaply by the action of sulphuric acid ^{or starch}. It is found also in berries ^{with the huckle}, but is not manufactured from them.

Sometimes

HONEY.

Honey contains it, flavored by certain aromatic substances, according to the flowers from which the honey is gathered. Certain honey, as Trebizonde honey is poisonous. Xenophon mentions the poisoning of an army by ^{such} honey.

POISONOUS;
AS
TREBIZONDE
HONEY.

A few words ^{only} may be said ^{here} concerning

of Kopidom,

* & more recently by J. M. Donnell of Dublin.

Its origin is yet unsettled — tho' many hold the view that it comes from the non-conversion of sugar into lactic acid by healthy respiratory combustion ^{under} ~~the~~ aeration of blood in the lungs.

meat & bran crackers (& cabbage)
also —
Campbell
Onions, Spinach
Celery & lettuce

DIABETIC SUGAR

diabetic sugar. The passage of this sugar in the urine, accompanied by waste of the system, is a subject of interesting discussion. ^{I have already alluded to the fact that} The liver as a sugar-producing organ ^{has been especially} examined by ~~Bernard~~ ^{of Paris} ~~and Lehmann~~ and by Dr. Parry. * This sugar may be tested like other sugars.

LIVER

Bernard of Paris

TESTS FOR GRAPE SUGAR

The ^{principal} tests for grape sugar are ~~three~~ ^{three} in number: 1st. the action of sulphate of copper, and ^{sulphate of} potassa, by which a yellowish red precipitate is obtained. This test is called Trommer's. 2nd. the action of potassa and heat, called Moor's. 3rd. The fermentation test. Glucose, or grape sugar is the only kind that will ferment. ^{These tests are of course available to detect the admixture of cane sugar.}

SHOULD SUGAR BE GIVEN TO DIABETIC PATIENTS?

In regard to diabetic patients, there has been much argument among doctors as to whether or not sugar should be given. Some suggest sugar as a cure for the disease. ~~They~~ ^{They} recommend yeast. The majority, Canfield among others, say that sugar should be avoided; that instead of it meat or food of that kind should be used. †

for *mana*

MANNITE,
LICORICE
AND
LICHENIN.

There are other forms of sugar, as manna, a product of the ash, licorice, and lichenin; besides muscle-sugar, of animal origin.

GLYCERIN.

Glycerin is not a sugar; its chemical relations are more like those of alcohol. It is very sweet, but it cannot be substituted for sugar, unless in the case of diabetics who have an appetite for sweets.

WHOLESALE
OF
SUGAR.

In regard to the unwholesomeness of sugar, there is much prejudice. Children are forbidden to eat it, although they have a craving for it, which seems to be something more than ^{one of its} mere taste.

CRAVING
OF
CHILDREN.

Sugar is easily dissolved and absorbed rapidly. When taken excessively it causes diarrhoea & nausea; ^{or} it makes acetic instead of lactic acid.

EFFECT OF
EXCESS.

Fehman says that the making of lactic acid, is the first step in the process of making fat; ^{perhaps} butyric acid, the next.

LEHMAN'S
STATEMENT.

SUGAR HAS
NO
EFFECT ON
THE TEETH.

It is very common to say that sugar decays the teeth. This is a mistake. There is no effect unless the stomach is out of order and acetic acid is thrown into the mouth. Then perhaps the enamel

* as it does also cause pain when there is
an ulcer of the stomach.

End of 19th Lecture, 1872

End of 13th Lecture, 1871; - 3^d on Alimentation.

Recapit. list of Amylaceous principles -
& sources of Cane & Grape Sugars -

Show specimens of different starches:
on board, magnif. views of st. corpuscles,
from Parkes? (Hassall).

have chosen assignees. The liabilities of the firm amount to \$2,300,000.

Frederick Myers, the accomplice of William Murray, who was convicted on Thursday last of the murder of Gothard Wahlin in November, was also convicted on Saturday of murder in the first degree.

In South Australia the results of the wheat harvest have been more satisfactory than was anticipated when the reaping commenced. It was estimated that the surplus for exportation will exceed 250,000 tons.

A violent storm of hail and snow prevailed at all points on the Hudson on Saturday night. The wind was from the northeast and blown very hard. It adds much to the already large quantity of snow and ice on the ground, and increases the fears of damaging freshets.

During the past few days a rumor has been in circulation throughout the Lehigh Valley that the miners in that region would resume work to-day. It is impossible to trace it to any reliable source, although some of the collieries will probably start, thereby giving some hope for a general resumption.

Latest California mining stock quotations: Ophir, 96; Mexican, 26 3/4; Gould & Curry, 18 1/4; Best & Belcher, 50; Savage, 127 1/2; Chollar, 59 1/2; Hale & Norcross, 46; Crown Point 29; Yellow Jacket, 76; Imperial, 7 1/4; Empire, 5 1/4; Kentucky, 14 1/4; Alpha, 18 1/4; Belcher 33; Confidence, 17 1/2; Consolidated Virginia, 42 1/2; Sierra Nevada, 12 1/2; California, 58 1/2; Exchequer, 215; Overman, 51; Bullion, 37; Justice, 68; Union, 8 1/2.

The Courier-Journal reporter, who was sent to the locality of the troubles in Todd county, Ky., reports that four of the accused Ku Klux are in jail, and will be brought up for trial to-day. The company of State militia has arrived and all is quiet. There is no apprehension of any attack upon the jail or an attempt at the rescue of the prisoners by their friends.

A telegram has been received at Lieutenant General Sheridan's headquarters, Chicago, reporting the surrender at Fort Sill of a portion of the Quohada band of Indians. This tribe is perfectly wild, and one of the most troublesome in the Southwest. The indications are that the whole tribe will come in.

Two freight trains on the Canadian Grand Trunk Railway collided on the Lachine Canal bank, Point St. Charles, Friday night, smashing both locomotives and some cattle cars, killing a number of cattle and seriously injuring one of the engineers. The accident was caused by the error of the telegraph operator, who has run away.

The Legislature of Delaware will adjourn in a few days. The measure attracting most interest is a bill to loan the credit of the State to the amount of \$300,000 to several proposed railroads in the central and lower sections of the State. They are designed to form part of a system centering at Lewes, there to connect with the Old Dominion line of steamers to New York. The bill passed the House of Representatives on Wednesday by a vote of 11 to 10, and has been read twice in the Senate. Its passage in that body is considered impossible.

may be acted on. The
that when a tooth
nothing is more
sugar. On the pl
eaten, and in spu
the West Indian
have better teeth
the people of the
Caw sweet,
French article.

EATING OF SUGAR CANE.

SUGAR-WATER OF THE FRENCH.

ADULTERATION OF SUGAR.

BROWN.

WHITE.

TEST.

A certain lecturer
sugar water which
formerly of the U
Adulteration
ous. Brown sugar
water; a ~~sort~~
ces of cane, &c.
monly adulterated
pecially when pulverized. Chalk, gypsum
and marble are used. Marble has the
same crystalline structure as sugar.
Sifted sugar is less liable to be adulterated
than pulverized. We can detect, by placing the
sugar in water, when the marble &c will not dissolve.

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How

marble or chalk

we enumerate the different form of adulteration, taking the word in its widest sense.

First. The foreign matter may be added simply to increase the weight or bulk of the article, and may be in itself wholly inert, as when sugar is wetted or mixed with sand. Here the buyer is simply cheated in practically the same way as when false weights are used.

Second. The substances may be added to improve the appearance, as when alum is added to bread to increase its whiteness, or when pickles are treated with a solution of copper to develop a green color.

Third. The adulteration may consist in the addition of some substance to increase, absolutely or apparently, the strength of the article, so that a weaker grade may pass for a stronger. This is a common form of adulteration in liquids, which are first diluted with water to increase their volume, and then the effect of this dilution counteracted by the addition of some substance which either increases the density or restores the taste.

Fourth. Sometimes there is a complete substitution of one article for another, as when diluted sulphuric acid is sold as vinegar.

Fifth. Occasionally the foreign matters are added without intention to deceive the buyer, but merely in deference to a prevailing custom or fashion. These cases are therefore not strictly adulteration, but since the substances added may be poisonous, the examination for them is too important to allow a mere technical distinction to interfere.

Sixth. It will appear, however, that the form of adulteration which is at once most extensively practiced and most difficult of detection is that which consists in adding to an article of high grade and price substances of the same nature, but of inferior quality. Here the chemist is almost completely at loss, since the question of quality is so often one decided by prejudice or fashion.

It is not to be understood that the above classification will include every instance of adulteration, or that all cases can be assigned to one or the other of the division; on the contrary, articles are often added which fulfil at the same time several different purposes. Thus mineral blues or green added to the teas for the purpose of "facing," as it is called, that is improving the color of the tea leaf, will, of course, increase also the weight of the article.

also cause pain when there is

stomach.

1872

1871; - 3^d on Alimentation.

glacous principles -
Cane & Grape Sugars -

different starches:

on board, Magnif. nervo of st. corpuscles,
from Parkes? (Hassall).



may be acted on. The origin of the opinion is that when a tooth is already decayed, nothing is more likely to ^{cause pain in} decay it, than sugar. On the plantations, sugar cane is eaten, and in spite of its fibrous nature, the West Indian negroes who eat it, have better teeth than the majority of the people of this country; I profited on it.

EATING OF SUGAR CANE.

SUGAR-WATER OF THE FRENCH.

^{Egyptians so too} Saw sweet, or sugar water is a French article. It is taken going to bed. A certain lecturer in France sipped his sugar water while lecturing. Prof. Haave formerly of the University took it. ^{Rock-candy in capsules children.}

ADULTERATIONS OF SUGAR.

BROWN.

WHITE.

Adulterations of sugar are numerous. ^{as already said} Brown sugar is full of adulterations, ^{spontaneous impurities} water; a ^{minute} portion of a fungus plant, pieces of cane, &c. ^{out, acarus,} The white is more commonly adulterated than the brown, especially when pulverized. Chalk, gypsum and marble are used. Marble has the same crystalline structure as sugar.

TEST.

Sifted sugar is less liable to be adulterated than pulverized. We can detect, ^{marble or chalk} by placing the sugar in water, when the marble &c will not dissolve.

milk -

"cruel to kill animals -

Bible - & Palaeontology -

Diet of children -

Quilted - 2 1/4 pails milk - 1 1/2 milk

veg., or animal?

Can, of stomach, & milk, or veg. -

If break - concentr. animal
as luffed

Diet of ark -

low diet - half veg - filled

not run so settles -

but stomach disease so -

Autism on the way to death

Full digested - & now there.

few

STARBUCK
PO
WH
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ARROW
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ARROW

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CORPUS
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POTA
14

SAGO

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Arrowroot starch granules -

$\frac{1}{1400}$ inch long, arcuate,

$\frac{1}{2400}$ " broad "

Bago Pearl

shaped - with concentric lines, & hilum (dark spot) with transverse line, at one end, generally **larger** end; sometimes radiating

Potato starch - granules,

Camna
copiously
much like
Potato
in form larger still.

☆
gives
-like
a pe
Alc
from
fite

star shape - variable in size) $\frac{1}{8000}$ to $\frac{1}{250}$ inch

long - this is important & different test.

Round, often disk-like - with or without hilum.

Saproc - st, gr.

Small - $\frac{1}{2000}$ inch, rounded - distinct hilum, with concentric rings.

Tubete
Sarc
much
like
Tapioca
larger.

Sago - st, grs

oblong, round at one end, square at the other - hilum circular when perfect, but often cracked star-like, or cross -

Twice as large as arrowroot
In pearl sago, altered in appearance.

under this

cooked
whitening water
its farinaceous food, of flour.

acid
ally-
starch
root,
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ate

STARCH.

- POTATO
- WHEAT
- CORN
- ARROWROOT
- SAGO
- CANNA

We will next take up the starches. There are many varieties. *Potato, wheat, and corn, starch, are the most common. The more delicate, which are good for sickness, are arrowroot, sago, tapioca and canna. The microscope detects the differences, as does the taste ^{much less perfectly} also. Potato and wheat starch, are not ^{so} good for the sick. Corn starch is ^{four} times used as a dessert. Various "farinas" ^{macerated} ^{to}

ARROWROOT.

Arrowroot is obtained from the maranta plant. The best comes from Bermuda. It is obtained from Georgia, Florida &c., also. It is a thick, lumpy, white powder. ~~It is a nice article for a weak stomach.~~ ^{or bowels.} It is ^{a table-spoonful or two to a pint} macerated and boiled with milk &c. to flavor it. To dissolve starch heat is

STARCH CORPUSCLES.

CANNA.

POTATO.

1/460

SAGO.

required, to break the corpuscles which are in layers, onion like. Canna, or tousel-mois, has the largest corpuscles. Those of the potato ^{the most in size} vary. * Those of arrowroot are ^{in.} 1/4 long and 2/4 of an inch broad. They have a transverse section and sometimes a star ⁱⁿ on them. The sago corpuscles are twice as large as those of arrowroot. The marks

~~the~~
 * / *Sagus* — Rumphii
 or *Cycas revoluta* —

Cycades have pith — being intermediate
 between exogens & endogens. —

The Saccharifying Influence of Infants' Saliva.

It has been hitherto generally believed that the secretion of the mouth of sucking infants does not possess the power of converting starch into sugar, as does that of older persons. SCHIFFER (*Reichert and Du Bois-Reymond's Archiv*, 1873) gives certain observations which show this to be incorrect. He placed little bags of tulle containing starch in the mouths of new-born infants, and of sucklings at various ages. In every case he found that on applying Trümmer's test to the contents the copper was reduced, showing the presence of sugar.—*Edin. Med. and Surg. Journ.*, Dec. 1873.

Cycas ~~coronata~~ —

Cycades have pits — being intermediate
between exogens & endogens. —

(on them are) circular. We cannot see the corpuscles in the pearl sago which we get.

SAGO.

Sago is obtained from the pith of the sago tree, which grows at Malaga and Africa. The tree is cut in the seventh year. In the form of pearl sago it is good for sick ^{persons} who need soft food.

PEARL SAGO

TAPIOCA.

Tapioca is obtained from the ^{manioc} ~~patipha~~ of Brazil and the West Indies. The plant is poisonous. The poison is driven off by heat and pressure. Tapioca is ^{the} most pleasant ^{of these articles} as dessert or sick diet.

CANNA.

Canna is little used here. ^{after Starch,}

GUM.

The next of these ^{almost} ~~principles~~ is gum; as gum Arabic. It is of no value as food. This was not always the opinion held.

Heller

ARABS.

It was formerly given to the sick as a ~~poor~~ diet. When eaten it passes unchanged through the bowels. An apparently contradictory circumstance is that Arabs, ^{are said to} make long journeys with gum as their food. This can hardly be accounted for unless they take coffee ^{at least} or that the ^{crude} gum, being fresh from the tree is ~~better~~ ^{more nourishing} than what we have in the refined form.

that near the chaffer grain huck is the most nitrogenous wheat phosphate now prepared for it. (Crust)

Perhaps salts impart a crystalloid, or fluid form for condit. & acid from acids as in de-creases. Metabolic salt

Saline Principles: Mainly

- chlorides - Sod. - potass. ^{Salt necessary} (Cattle exper.)
- phosphates - " " ^{Holland put}
- sulphates - " " ^{Blood-gastro}
- iron - in obscure forms of combin. ^{Calcium}

Diebig advises adding bread, potass. to "food for infants" because ^{mother's milk has it} ^{as wheat has little lime.} ^{lime-water in babies' milk.}

End 1873

Acidulous

- Pectic acid - with pectin in fruits, ^{like gelatin.}
- in apples, pears, quinces, berries, cherries, oranges, tomatoes, onions, carrots, beets & turnips
- in milk
- Arctic acid - in vinegar, - some in beets & turnips
- Citric acid - Oranges & lemons, lemons & unripe grapes
- Tartaric acid - Grapes
- malic - apples, pears especially aqueous & unripened in summer time

Leave 2 pages free for this page

Undefined veg. (botany) some at least and known from 5 parents being seen very.

Wholesome to eat a little raw veg. food every few days; Celery, lettuce, radishes, cole-slaw, etc. -